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AMERICAN FORESTS

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THE COVER—The Woods Awakens
Photograph by Rutherford Platt

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The American Forestry Association, founded in 1875, is a citizens' organization for the advancement of intelligent management and use of the country's forests and related resources of soil, water, wildlife and outdoor recreation.

Its educational activities seek to bring about a better appreciation and handling of these resources, whether publicly or privately owned, that they may contribute permanently to the welfare of the nation and its people.

In addition to publication of its magazine—AMERICAN FORESTS—designed to keep before the people of the country important conservation questions and issues, the Association carries on educational work in various fields including forest fire prevention, reforestation, protection of wildlife, prevention of soil erosion, preservation of wilderness areas, establishment of national forests and parks, advancement of forestry by private endeavor, the teaching of conservation in schools and the promotion of research in timber growing and forest utilization.

The Association is independent and non-commercial, and has no connection with any federal or state governments. Its resources and income are devoted to the advancement of conservation in the interests of public welfare, and all citizens are welcomed to membership.

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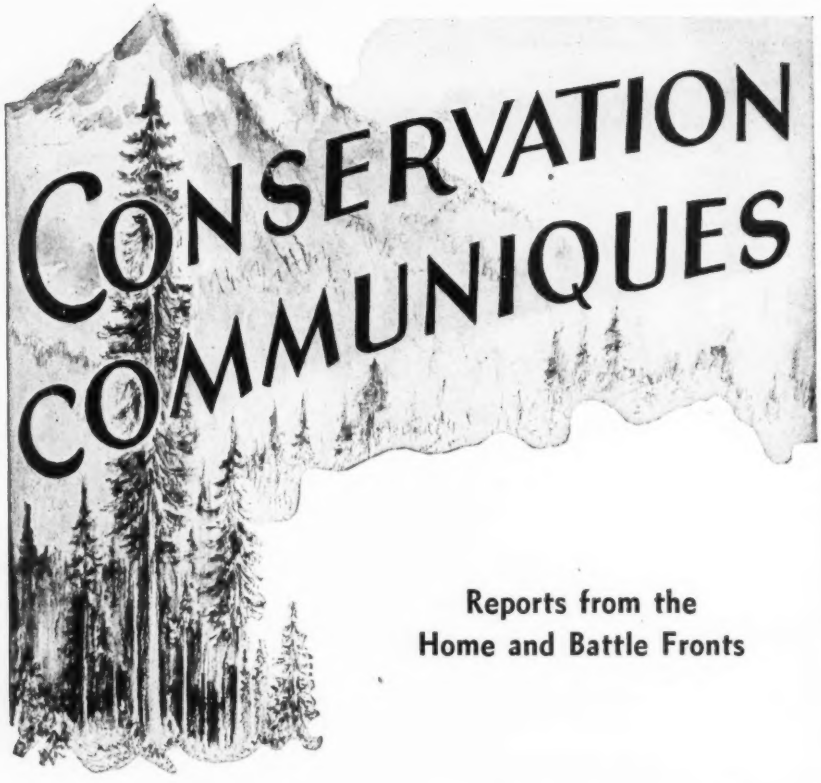

CONSERVATION COMMUNIQUES

Reports from the Home and Battle Fronts

Activities of the Timber Production War Project, set up to increase the output of forest products, have resulted in the production of an estimated 390,000,000 board feet of essential wood products, reports the WPB. This will materially help in the drive to meet 1944 war lumber requirements, now raised to 35,000,000,000 feet.

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The Army will get reindeer meat from the Arctic. According to reports, more than 400 Eskimos are laboring in blizzards to round up 8,000 animals.

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Press reports from Chungking state that the Japs are establishing new shipyards at Singapore, Swatow and Amoy for the construction of wooden junks to relieve a shipping shortage. Pine logs and many fishing junks along the China coast have been seized, it is said. At the same time, a broadcast from Java reveals how the Japs are ravishing the forests of that island. "Plans for felling timber," said the broadcaster, "exceed the amount cut in prewar years. Lumber mills are working night and day, and the shipyards are using much of this timber for small vessels."

The combined requirements in 1944 for pulp and paper products of the United States, Canada and the United Kingdom are estimated to be equivalent to 24,000,000 cords of pulpwood, according to the Combined Pulp and Paper Committee. The combined supply estimate now stands at 21,000,000 cords, indicating an overall deficit of eleven percent. The prospective shortage last fall was twenty-seven percent. This improvement is due to the increased supply of pulpwood, now estimated to be eighteen percent greater than was indicated, and to further paring of requirements and restrictions on consumption rates.

• • • •

Germany's present timber cutting program, according to a European lumber journal, calls for a further increase of 10,000,000 cubic meters. This will bring the total for the year up to 80,000,000 cubic meters, or approximately 25,000,000 cubic meters over the normal annual cut for that country.

• • • •

Spain, it is reported, is planning a reforestation program to be carried out in connection with the government's Catalonian colonization project. An area of 35,000 acres near the Canal de Aragon y Cataluna will be planted with pine trees to provide future raw material for a pulp and paper industry.

• • • •

Although primarily intended to stop oil pollution because it presents a serious fire hazard in critical port areas, an order recently issued by the War Shipping Administration will save the lives of many birds and valuable food fishes that die annually from this cause. The order forbids the dumping of oil from boats in waters close to shore.

• • • •

Hybrid Hevea rubber plants that promise better yields of latex and resistance to South American leaf blight are emerging from joint tests carried on in Brazil by plant breeders of the U. S. Department of Agriculture cooperating with scientists of the Brazilian Ministry of Agriculture. Hundreds of crosses have been made between susceptible Oriental strains and the best of resistant selections produced in earlier years on the Ford plantation in Brazil. Five of the crosses have given forty to fifty percent of seedlings highly resistant to the blight.

• • • •

American housewives looking for a substitute for washing powder, difficult to get these days, are offered a formula originating in Nazi-occupied Netherlands. Here it is: "Dry chestnuts, remove the husks, and grate the kernels. After boiling the kernels, press the mush through a sieve. The liquid thus obtained must be mixed with warm water, after which it is ready for use."

• • • •

Hungary is making plans for a postwar forestry program, states the Nazi press, with considerable attention given to additional highway and railroad facilities in forest regions to reduce timber transportation costs.

• • • •

Here is the fuelwood situation in Oslo after nearly four years of occupation by the Germans: Writes a Norwegian visiting that city in January, "The wood—there is little enough of it, and what there is, is sour and raw. There has been no time for proper seasoning. It's been a matter of loading it onto fuming and sputtering charcoal-burning trucks, or onto creaking railway cars, and then getting it to the city as quickly as possible. There is a wild stampede for every load that arrives, no matter how raw and sour the wood might be."

A TREE FOR MOTHER . . .

EVERY soldier who falls on the field of battle is some mother's son. Every bomb dropped on cities and villages shatters some mother's home. Every warehouse looted, every grain field burned brings starvation to some mother far removed from the scene of battle. In times of peace the role of mothers is one of loyal devotion and brave sacrifice. In war, their courage and deeds symbolize all things for which men fight—and die.

This is why the beautiful and meaningful custom of planting a "Mother's Tree" should be observed with special reverence this spring. If we honor mothers in times of peace, our tribute to them during the dark days of war should be inspired a thousandfold. And there is no more appropriate tribute than a living tree whose branches reach out in sheltering fashion, like a mother's arms.

May 13 will mark the twenty-first anniversary of the "Mother's Tree," a custom originated in 1923 by the late Solan Parkes of Pennsylvania, and later adopted and sponsored by The American Forestry Association. Casting about for a means to honor the memory of his mother, Mr. Parkes found in a tree a fitting tribute. He selected the white birch, called by Coleridge the "Lady of the Woods," and this was later designated by The American Forestry Association as the national tree to be planted in honor of mothers and motherhood. The European form, *Betula laciniata,* was selected because it is more beautiful in form than our native American or paper birch, and also because it will grow almost anywhere except in very arid regions.

Under the Association's sponsorship, white birches have been dedicated to individual mothers, to mothers belonging to the nation, to groups of mothers—even to the mother of the Unknown Soldier at Arlington, Virginia. A "Mother's Tree" stands on the White House grounds to honor the mothers of our presidents, past and to come. At Fredericksburg, Virginia, at the tomb of Mary Ball, mother of George Washington, stands another "Mother's Tree." And on the Capitol grounds in Washington a white birch stands, dedicated to the mothers of the nation.

So honor your own mother—war mothers everywhere—and plant a "Mother's Tree," a white birch, sometime this May,—preferably on Mother's Day.

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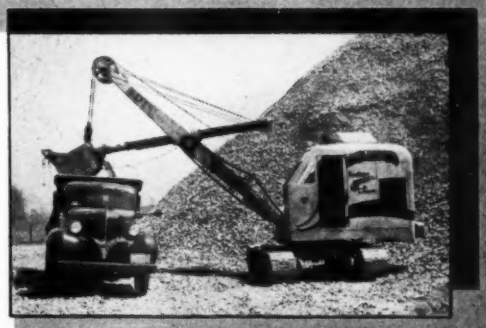

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"In Nature's house young April now
Flings scarves of white upon the dogwood bough."

Editorial

CAN WE DO IT?

WE AMERICANS do not like to think that other countries can do something worthwhile that we cannot do. Here, then, is a challenge for the people of the United States, the meeting of which will contribute much to the prosecution of the war and to the future well being of the nation.

According to an official statement from Soviet sources in Moscow, recently received by the Canadian Forestry Association, Russia during the past five years has reduced the number of forest fires in that country by fifty percent. This accomplishment might be minimized if Russia's forest area were small and restricted—but it is not. The forests of European Russia cover a larger area of land than do our own forests, while if Asiatic Russia is included the Soviet forest domain is three times that of the United States and the largest of any country in the world. It should further be borne in mind that Russia's notable reduction of forest fires was accomplished during a period in which the country was engaged in the greatest war of its history.

By what methods has Russia achieved this record? Apparently the control of forest fires was made a national objective of high priority. "All the forests of the Soviet Union are patrolled from the air by plane," according to the source of our information. "Pilots report fires by radio and also drop a message giving details of the fire in the nearest town or settlement. The person who delivers this message to the local forester or municipal authorities receives a money reward. Foresters have the right to mobilize neighboring farmers and lumbermen to fight fires, and in cases of necessity can also mobilize the population of neighboring cities."

Planes, we are further told, are also used to fight forest fires when they do occur, and the parachuting of fire-fighters is common practice, particularly in the inaccessible regions of Siberia.

This report emphasizes what a nation can do when it really wills to control its forest fires. The record of the United States does not stand comparison. In point of numbers, fires in our own forests continue to increase even during these critical war years. For several years now the number of fires has gone over the 200,000 mark, a record that should make an enlightened people think, particularly when the value of the forest resource is being brought so emphatically home to them.

In comparing our own record with Russia's, some people doubtless will say we should bow our heads in shame. That gesture will accomplish nothing. More to the point, the Congress and the people of the United States, with a new fire year challenging them and the war crying for wood to carry our soldiers food and equipment, should throw back their heads and say: "We will lick enemy fire as we are licking enemy Tojo."

If we will it, we can do it.

THE PORCUPINE MOUNTAINS

THE PEOPLE of Michigan have rescued from threatened exploitation a sizable portion of the famous Porcupine Mountains wilderness on the southern shore of Lake Superior in the Upper Peninsula (see January, 1941, issue of AMERICAN FORESTS for description of area). Through action of the State Legislature, they have appropriated $1,000,000 for the purchase of 46,000 acres, including large stands of virgin hardwood forests and the highest mountains between the Black Hills and the Alleghanies, to be administered by the State Department of Conservation as a "state recreational area."

This is hailed by conservationists as a major achievement. And it is, for a number of reasons, not the least of which is that it underscores what a state, when put to it, can and will do to preserve a valuable resource without benefit of the federal treasury. Readers will recall the Hook Bill of 1941 requesting the Congress of the United States to provide $30,000,000 for federal acquisition of the Porcupine wilderness along with other areas in Michigan and Wisconsin; also, when this failed, a movement to have a portion of the wilderness included in the national park system. It was following this that the people of Michigan, watching with apprehension the increasing activity of lumber operators in the region, decided to act—and act quickly.

In August, the State Conservation Commission adopted a resolution urging purchase of what is considered the key area, the Porcupine Mountains proper and the lower stretches of the Presque Isle River. The State Planning Commission gave its stamp of approval. Governor Harry F. Kelly added his backing. The public voiced its support. The State Legislature in special session acted accordingly, with the result that money is now available and land purchases will start immediately.

All of this happened in the short space of six months, a dramatic and fitting climax to the nineteen-year-old fight to save a portion of the Porcupines. Perhaps it would have happened earlier had not the original proposal, presented in 1925 by P. J. Hoffmaster, now director of conservation for Michigan, and calling for a state park development, faltered under the lack of a definite program of action. That it was energetically revived, after federal acquisition efforts had run their course, in time to save for Michigan and the nation the outstanding features of this unique area is evidence enough that the states have the means—and the will—to deal with their own land resources when the chips are down, so to speak.

It also suggests that state action is good economy. Michigan's bill for the 46,000 acres she will acquire—the area promoted as having national park values—will not exceed $1,000,000. The federal program as set forth in the Hook Bill was more ambitious. It would have authorized purchase of a much greater portion of the Porcupine area, some 130,000 acres in extent, at a cost to the taxpayers of around $10,000,000.

Everything considered, the Porcupine Mountains case is a good example of how a state can meet its own conservation requirements.

TIMBER MISSION

It Takes All Kinds of Wood to Win a War—Here's How We're Getting It

By ERLE KAUFFMAN

One of the most important war contributions of Uncle Sam's timber missions is the steady flow of balsa wood from tropical America. Its use runs from life rafts to bombers

WHEN Lt. Colonel Arthur F. Fischer, just before the fall of Bataan, escaped from the Philippines with a supply of cinchona seed, the curtain was raised on the greatest tree hunt this hemisphere has ever known. The purpose of this epic flight was to root in American soil trees from which quinine could be obtained in the event the Netherlands Indies, main world source of quinine bark, should fall to the Japs along with the Philippines. Actually it did more than this. It brought the American people to the realization that battles could be lost for want of a product of the forest.

Not that quinine could have saved the Philippines. But with an adequate supply the chances are its malaria-ridden defenders would have had the physical stamina to hold off the Japs for additional weeks, possibly months. The time thus gained to build up defenses elsewhere may have altered the pattern of conquest—and reconquest—of the south and southwest Pacific.

The small supply of cinchona seed Colonel Fischer, for many years chief of the Philippine Forest Service, brought to this country will not, in all probability, be called upon to contribute to the malaria battle being fought around the world. Today, thousands of the young seedlings are growing experimentally in Latin America; yet in an emergency, they can be slaughter-harvested, torn up by their roots and quinine extracted. But the circumstances which brought about this undertaking, the sudden loss of our quinine bark sources and the cold, hard fact that without suitable antimalaria control the tropical jungle we must reconquer may prove more deadly than the Japs, also motivated one of our first tree missions, the search for cinchona along the wild eastern slopes of the Andes, its original habitat. Today, quinine from this new source is sharing with stores on hand and antimalaria substitutes the job of protecting the health of our fighting men.

This is vitally important, but it is only one of the many jobs the forests are called upon to perform in our bitter struggle with Hitler and Tojo. And while our own well-stocked timberlands are contributing unstintingly to this struggle, they are, for geographical reasons, unable to meet many critical needs. Quinine is an outstanding example; so are rubber and certain kinds of vegetable oils. It is our good fortune that cinchona grows wild in the mountainous jungles of Ecuador, Peru, Colombia and other of our sister republics. Wild Para rubber trees spread over the vast Amazon basin. Palms of many varieties, capable of producing vegetable oils for an assortment of war uses, are bountiful in Brazil. How important to us are these undeveloped, and in many cases unexplored resources, is highlighted by the sombre fact that ninety-nine percent of our quinine, nine-tenths of our rubber, and probably a half of our vegetable oil sources were lost with the fall of Manila and Singapore.

Lumber, the basic forest product, with the exception of so-called "Philippine mahogany," was not seriously affected by the Jap thrust in the Pacific. Nevertheless, our search for certain woods of high strategic value is reaching out from the Rio Grande to the Amazon—even across the South Atlantic to Africa. Timber missions are in Mexico, Nicaragua, Costa Rica, Colombia, Ecuador, Peru, Bolivia, Venezuela, Chile—all of the important timber-producing republics to the south. Some have made and are now making surveys of timber resources. Others, and more important to the immediate conduct of the war, are getting out such essential woods as balsa, mahogany and lignum vitae.

Exploring for quinine-giving cinchona high in the Andes

Unlike the work of the Rubber Development Corporation and the vegetable oil missions of the Bureau of Foreign and Domestic Commerce in the Amazon Valley, the extent of our search for strategic woods and the herculean task of making them available in sufficient quantities to the Allied war effort are little known. Yet timber missions have been operating in the jungles and mountains of two continents since early in 1942, a cooperative undertaking of the Office of Inter-American Affairs, the United States Forest Service and the Foreign Economic Administration. The Forest Service is active mainly in making exploratory studies of promising timber trees and of possibilities for the expansion of wood utilization industries. The procurement program, the job of getting the vitally needed timber out of the jungle and into the war, is handled by the Foreign Economic Administration. The overall effort is concentrated mainly on timber for specific war uses, and on certain tree products such as quinine.

The number of timber missions dedicated to this effort and the volume of lumber rolling out of the jungles as a result of it is, of course, strictly the business of the government. However, some information has been made available and it is of small comfort to either Hitler or Tojo. Take the case of balsa:

In 1940, this country imported around 6,000,000 board feet, all but a small proportion of balsa wood entering commerce. In 1942, with the advent of war, this figure was more than doubled. Even so, balsa remained scarce; every pound was requisitioned by the government. Expanding war production developed new uses, and consequently new demands. Indispensable for life rafts, life preservers, submarine mine floats and pontoons, balsa, combined or "sandwiched" with other woods, became important to aircraft builders. Veneered with fiberboard, balsa wings were used in glider construction. Combined with birch, it made up the plywood fuselage of the famous Mosquito bomber. Shipbuilders also raised their balsa requirements—for lifeboats, for insulation, for a hundred other uses. Thus, with war production in full swing, the 15,000,000 board feet of balsa imported in 1942 was less than half the amount needed in 1943. It was up to the balsa missions to again double the production figure. This they did—with 35,000,000 feet.

Prior to the war, ninety-eight percent of the world production of balsa came from Ecuador, although this fast-growing tree ranges wild from southern Mexico to Bolivia. Today, Ecuador still provides the great bulk of balsa, and undoubtedly will continue to do so because of natural facilities and inexpensive labor for harvesting and shipping the wood. Nevertheless, increasingly large quantities are being obtained in Costa Rica, and production programs are in progress in Guatemala, Nicaragua and Colombia. At present, the known supply seems sufficient to meet the millions of feet needed for victory, but the timber missions, with an eye to any eventuality, are constantly seeking new sources.

Their major effort, however, has been directed toward improving the efficiency of cutting methods and producing mills. This has involved, among other things, the introduction of the saw and other modern logging equipment, the expan-

sion of sawmill capacities, and the development of an orderly system of grading balsa lumber. At the same time, the missions have grappled with market stabilization and quality control of the product. In brief, their job has been to supply balsa wood in the quality and quantity needed for its various war uses, and this they have done by attacking production problems all along the line.

These problems, of interest mainly to logging and mill engineers and to wood technologists, range from the characteristics of the tree itself to proper kiln drying of the manufactured product. For example, the lightest balsa wood is obtained from fast growing trees around six years old (they often grow as much as fifteen feet the first year), but if the tree is injured during growth heavier wood is formed—and perhaps too heavy for use. Customary practice of native woodsmen is to cut any tree, including the injured and deformed, and in lengths most suitable for carrying and rafting. This practice obviously is extremely wasteful and time consuming; it is not uncommon for more than half the balsa logs reaching the mills to be discarded. The missions are endeavoring to correct this by encouraging, when available, the use of better logging equipment, by eliminating the harvest of defective trees, and by cutting logs in uniform lengths.

The soft, spongy wood of balsa, if left on the ground after cutting, deteriorates rapidly. This means that logging operations must be closely synchronized with mill capacities and schedules—a situation full of headaches in light of the fact that balsa logging is generally done with oxen, a slow process at best. The limited number of trucks and tractors the missions introduced in production regions have been of incalculable value.

Proper drying and grading after manufacture are essential, especially in lumber designated for aircraft construction. The Foreign Economic Adminstration has trained many graders and inspectors, and to this training program is largely due the progress made in speeding up delivery of balsa wood.

Along with balsa, mahogany (and woods with similar characteristics) ranks near the top in strategic value. Marine architects prefer it, particularly for landing craft and the havoc-raising miniature destroyers, the famous PT boats. Aircraft engineers demand it for propellers, for training planes, for gliders. As to our source of supply, a possible 100,000,000 board feet a year of "Philippine mahogany" was lost when the islands fell; a substantial volume from Africa has been curtailed due to shipping difficulties.

But we are getting mahogany—and getting enough to meet critical war requirements. It is coming from tropical America, from areas that have long been tapped as well as from regions heretofore largely unexplored. This is the work of timber missions operating primarily in Mexico, Nicaragua, British Honduras, Guatemala, Brazil and Peru. Missions to expedite production have even reached out to the Gold and Ivory coasts of Africa and French Equatorial Africa.

Under this stimulus, and due also to higher prices and measures taken by the Foreign Economic Administration in cooperation with industry and foreign governments, the amount of mahogany imported into this country last year exceeded by several million board feet the figure thought possible in 1942. Production will be even greater this year, as Mexico alone is expected to supply 15,000,000 board feet. To facilitate production, the mahogany missions, in addition to their exploratory efforts, have undertaken procurement of logging wagons, trailers, power saws and some sawmill equipment. One mill of 8,000,000 feet annual capacity has been moved intact from West Virginia to Nicaragua.

Because of its great strength and density, coupled with other useful qualities, lignum vitae has been widely sought by the timber missions, mainly in the Caribbean area. Its wood is exceedingly hard, heavy and of fine texture, very durable under all conditions. Its major use in war production is for ship propeller shaft bearings, turbine bearings, bushings and mast trucks. although a large amount is used by mill machinery manufacturers.

Of the 8,000,000 pounds imported in 1942, three-fourths of this remarkably durable wood came from Haiti, Guatemala, Honduras and the Dominican Republic. The remainder, with the exception of 67,000 pounds from Argentina, came mainly from other Central American republics. The supply in this region is believed to be sufficient, the missions devoting the greater part of their effort to speeding up production.

Balsa, mahogany, lignum vitae—these are the principal woods of great strategic value our timber missions are searching out and delivering to the war effort. Their importance lies in the fact that they grow in soils other than our own. For them, this country is dependent upon sustained imports — from new sources when old sources are depleted or cut off. But there are other woods—familiar woods such as pine, oak, and ash—that are needed for the war in quantities greater than our own forests or overtaxed forest industries can produce. It is therefore up to the timber missions to supplement production from the forests of neighboring countries.

Our own stands of pine are enormous —but so are war requirements for pine lumber. They are particularly heavy at present due to mounting needs for boxing and crating munitions. Pine mills are operating to the capacity of available manpower, yet new sources are needed. So the missions turned to Mexico where, according to one estimate, are growing 76,000,000,000 board feet of pine timber. The original goal was to supplement our own production with 75,000,000 feet of ponderosa pine, mainly from the states of Chihuahua, Durango, Tamaulipas and Japisco. This has developed slowly due to great demand for pine lumber in Mexico itself. Indications, however, are that production in 1944 will increase substantially.

The missions also have turned to Mexico for tough white ash and white oak. Ash is needed for lifeboat oars, implement and tool handles and numerous other specialized uses. Shipbuilders demand white oak, and it is required for truck bodies and various industrial uses. Both are becoming critically scarce in this country, particularly wood that will meet strict war specifications.

Ash of excellent quality is known to be growing in the higher altitudes of the Guadalajera region of Mexico as well as in the states of Jalisco and Michoacan. White oak suitable for war needs is believed to be available in Jalisco and Tamaulipas. Since neither of these woods have been used extensively in Mexico, little is known about them. The job of the timber missions, therefore, is more or less exploratory.

Late in December a mission was sent to Chile to aid that country in a study of its forest resources and wood utilization industries. This mission, like others of the same character, was made up chiefly of Forest Service specialists, and had for its objective the overall development of Chile's forest industries. Its work will include field surveys to determine the extent and character of forest resources with emphasis on timber species of potential commercial value.

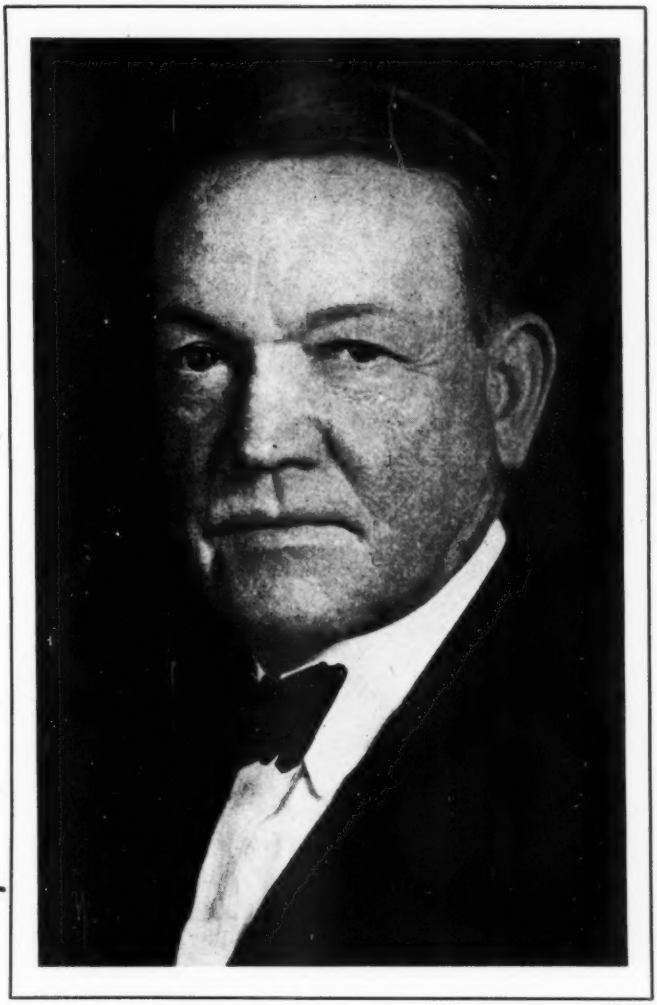
This type of mission has opportunity to study woods about which little is now known, but which in the future may be substituted for species so extravagantly used today. For example, there are several other tropical woods known to be almost as light as balsa, among them quipo, corkwood, cajeto and mecate. Undoubtedly there are others, unknown at the moment, which, if and when needed, could be developed and used. A new kind of oak, in almost pure stands, has been discovered in Costa Rica. Much more needs to be known about these and others woods, however, and about means for their development. The work of the present timber missions will unquestionably contribute to this knowledge.

But the job today is to produce strategic woods in the quantity and quality needed to win the war—and this Uncle Sam's timber missions are doing.

Charles L. McNary

A TRIBUTE

By W. B. GREELEY



IN whimsical moments, Senator "Charley Mac" used to tell his friends that his parents had the bad grace to move from their log cabin into a new frame farm house a few months before his appearance, and thereby denied him a clear birthright to the presidency of the United States.

But whether living within logs or clapboards, his early days among the farms and forests of the fruitful Willamette Valley gave Senator McNary an instinct for the land which dominated his public life. At heart he was always a farmer and a forester, a "dirt farmer" he liked to say. At "Fir-Cone," his ranch-home on the Willamette River, fields and orchards alternate with woodland and towering groups of Douglasfirs. Among his innumerable experiments in growing things, his prize filberts and fruit trees and tests of Russian clover, he always pointed out the forest trees he had brought in from many parts of the country. He had proven—for one thing—that you could transplant a husky young Douglasfir any season of the year and make it grow.

It was fortunate that when Charles McNary came to the United States Senate in 1917 his interest in land and farming placed him in the Committee on Agriculture. He was brought quickly in touch with all phases of forestry during a period of intense activity in the development of national policy. His kindliness of soul and soil-bred neighborliness gave him a rare faculty for working with other men. McNary became a great national leader, not so much from his own intellectual power as his ability to meet other minds, to accept and champion good ideas from any source, to fuse and organize an effective political group. His was the leadership of American democracy. With unfailing zest for the land and everything it grows, the Senator from Oregon did more for American forestry, in his twenty-seven years of service, than any other member of Congress since the founding of the Republic.

Forestry came to the front of public concern and political discussion immediately after World War I. Several proposals for federal regulation of all timber cutting were offered to Congress. Senator McNary wanted more facts; "dig into the dirt" was a favorite phrase. Under his resolution and chairmanship, a committee of Senators and Representatives held hearings in every forest region of the United States—brass-tack discussions with lumbermen, farmers, state and federal foresters, forest educators. It was the first time Congress had taken off its coat and dug into the roots of the forest problem.

There followed the Clarke-McNary Act of 1923. It laid down a broad charter of federal cooperation with the states and private owners in controlling forest fires and devising betterments in forest taxation. This law took its place with the Forest Reserve Act of 1891, which established federal forests, and the Weeks Act of 1911, which authorized their extension to the watersheds of navigable streams. The three acts together form the main structure of federal forest policy. For twenty years, the McNary statute has furnished the basis for federal aid and participation in conserving the private forest resources of the country.

It is noteworthy that in his last months of public service, almost the last of his life, Senator McNary championed and secured Senate approval of an amending bill which increased the authorization under his original act from $2,500,000 to $9,000,000 a year. This was required to meet the expanding needs of forest protection as we gauge them today.

In 1928 came another chapter of basic forest legislation. This was the McNary-McSweeney Act. It was characteristic of the Oregon statesman that in nearly all the legislation which he sponsored, his name is coupled with that of another member of Congress. It was his way of doing things. The "Scotch-Irish" Act, as it is familiarly known, was a broad directive for forest research, from the woods to the finished product. For the first time in the United States, provision was also made for a comprehensive inventory of forest resources, growth

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WARDS OF THE SPRUCE

Birds That Haunt the Wild, Dark Domain of the Spire-Like Engelmanns

By JOHN LINDSEY BLACKFORD

Cool, moist and sheltered is the Engelmann spruce forest — wilderness home for many birds. One of them, above, is the tiny Mountain Chickadee

NO evergreen that clothes the western ranges claims a more interesting following of birds than Engelmann spruce, the mighty, spire-like tree of deep ravines, sheltered basins and cool, moist slopes. Its vast, blue-green ranks form one of the densest and darkest of coniferous forests, an ideal habitat for such shy and fascinating residents as the winter wren, the Rocky Mountain creeper and the elfin, golden-crowned kinglet. The goshawk, that rare bird of deadly prowess, seeks the secluded stands of spruce to nest, and great gray owls, three-toed woodpeckers, mountain chickadees, spruce grouse, gray and crested jays haunt these silent depths, or flash amid the lofty Engelmann spires.

The domain of the Engelmann extends from Yukon Territory south along the Rockies into New Mexico and Arizona. Westward it reaches to the Cascades in Washington, descends their Pacific slopes in Oregon, and continues south to the California border. From the Transition life zone where the tree invades deep ravines beside cold mountain torrents, it climbs to timberline. Throughout the northern Rockies giant and extensive stands of Engelmann are a feature of the Canadian zone; in Colorado, where the cordilleran massif lifts its tremendous peaks, Engelmann spruce and alpine fir dominate the heavy forests of the sub-alpine belt. Together or separately, their dwarfed representatives form the bulk of the wind-timber that battles heroically for existence upon the heights.

Consider, first, some of the characteristics which determine the type of habitat this spruce offers to bird friends, that limit their number, and, in addition to moulding their habits, eventually constitute in part the basis for their physical adaptations. From the pendulous cones of the upper branches, the great conifer releases an abundance of small winged seeds. Remarkably tolerant of shade, the sturdy seedlings cluster about the parent evergreen and multiply until fre-

quently they close with other such family circles.

Clouds commonly wreathe the spires of the Engelmanns and the cold mountain air and moist soils of higher altitudes are essential to its existence. In its lower range, it seeks the borders of river banks, humid canyons and protected north slopes where springs and seepages are common. Mineral soils are preferred, for the seed rootlets cannot penetrate through deep duff. The shallow earth of mountainsides affords no obstacles because the spreading root system maintains foothold there.

Needled floors are thickly covered with forests of seedling trees, while a ground growth of other vegetative forms is characteristic about the bases of mature specimens. Mosses, grasses, lichens and ferns fabricate a green carpet; stiff club moss drapes the seepages and creeps over decaying logs. Pipsissewa and ground cedar delight in the shade and moisture here. Bunchberry's scarlet fruit-clusters are abundant and dwarf whortleberry, kinnikinnic and Oregon grape scatteringly invade these strongholds.

Thus does the Engelmann spruce provide a dim wilderness home for its avian wards.

Snow still lies in many recesses of the spruce woods when the muffled throbbing wing-thunder of Franklin's grouse breaks the accustomed silence. Seeking some fallen moss-covered trunk, the western cousin of the Canada spruce partridge poses; then slowly, on vibrant, drumming wings, rises vertically to an elevated perch. The rolling "wing song" bursts forth again as he descends to his courtship log or hangs suspended on passionately beating pinions. In curious strut or love dance the cock also displays his ruby-red "eyebrows" and fine plumage. The deep swamp-forest and lonely mountain wilds are the year-round home of this bird, called "fool hen" merely because he knows no fear and only a friendly and abiding curiosity.

Inhabiting the Engelmanns through the central Rockies, though more abundant elsewhere among the firs, the dusky or blue grouse and its several geographical forms lend allure to the high timber. Throughout the winter the alpine evergreens provide shelter and food. Spring finds many of the cocks hooting and booming in the valleys, where the hens later rear their young. Others remain to nest in the mountains, mainly above the spruce woods, upon the elevated ridges. In mid-June, on the 10,500 foot rim of Cedar Breaks in southern Utah, a blue grouse stole stealthily away from me into the deeper spruces as I circled the colorful brink of that gigantic wash.

Black-headed Jay, colorful, crested and garrulus

Cooper Hawks—fierce, even as nestlings

The Alaska Three-toed Woodpecker likes the high wilderness

In the north, cascading, icy torrents and melting snowbanks herald the homecoming of the varied thrush. Then again, in the deep forest is heard the vibrant call of this mountain robin. "The hermit thrush himself is no more serene than this wild dweller in the western spruce forests," wrote Louis Agassiz Fuertes.

Here, too, live the golden-crowned kinglets, smallest among our birds except the hummers. Their bright crown jewels may readily be seen, if it please them to grant an audience; but they have a way of inspecting intruders while affording but a tantalizing glimpse of orange-red and yellow crests. The tiny monarchs' thin, shrill notes usually descend from the towering spires of the trees, for they love to troop there in the forest's high avenues.

A somberly clad commoner, concerned only with the affairs of his bark world, is that indefatigable searcher of cracks and crevices, the Rocky Mountain creeper. On the great boles of Engelmann spruce, which are sometimes five feet in diameter, he does much of his life work. Yet he makes music which one writer describes as "a garland of song," and another relates as "dying away like the soft sigh of wind among the pine boughs."

In the depths of a spruce forest, or where spruce mingles in dank ravines with giant cedar, western hemlock and larch, another brownish mite is seen close at hand. This is the winter wren with liquidly trilling melody.

The untracked wilds of spruce are a favored nesting site of the goshawk. The wild beauty, perhaps, as well as the dark fastnesses of the spired forests, appeals to the bold heart of this fearless, audacious conqueror.

Cooper's hawk and the ruthless little sharp-shin, smallest of the "blue darters," seek the primal wilderness, and the latter, especially, is a characteristic breeder within the borders of the spruce. To their stealth and daring, to their skill in ambush, to swift attack and relentless pursuit, the blunt-winged accipiters owe success in taking prey. It has been said that flickers escape the onslaught of the sharp-shin by dodging

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TREE FARMER

Farmer Paul Gunby and Others Like Him Have Shown Us How to Grow Timber

By WELLINGTON R. BURT

THE early morning sun was just breaking through the pines as we entered a clearing to greet Paul Gunby. He was waiting for us by a small portable sawmill, surrounded by neatly piled brown lumber.

"Glad you came," he said warmly. "Been waiting to show you what progress I've made since you were here last."

Paul Gunby is like that. A hardy tree grower who is always making progress, he is as proud as a peacock of his accomplishments. And he has a right to be. The forty-year-old loblolly pine forest surrounding the clearing was ample testimony to his achievements as a tree farmer, a field in which he is something of a pioneer.

Paul Gunby has made tree crops pay good dividends on his Maryland farm. Here he exhibits a fifteen-year-old stand of loblolly pine

Forty years ago young Paul Gunby and his bride settled down on a small farm on the southeastern tip of Maryland's Eastern Shore. In addition to good tillable farm land, there were fifty acres of old-growth loblolly pine, ready to cut. Needing cash to buy farm equipment, Mr. Gunby decided to sell the timber, but he insisted on leaving a sufficient number of healthy seed trees to reforest the land. That was the most important decision Paul Gunby ever made. It has paid him big dividends.

Soon after the old timber was cut, seedlings started to sprout. Then, in time, Mr. Gunby found himself confronted with an excess of two- and three-inch loblolly pine saplings, which were crowding each other out and slowing up the growth of his young timber. Later, in Crisfield, he found that saplings this size were in demand for use as floats for crab pounds on Chesapeake Bay. His problem was solved. He began thinning his woods, taking out only the saplings that lacked vigor and had slipped behind the dominant young trees. With additional sunlight and moisture the remaining saplings grew more rapidly. Each year Mr. Gunby would go into his forest and thin out the slower growing trees and sell them for crab pound floats and later, as the trees increased in size, for telephone poles and dock piling.

Last year Mr. Gunby's fifty-acre forest was ready for another major sawtimber harvest. He sold 1,000,000 board feet of timber for $10,500, with provision that four healthy seed trees be left standing on each acre. In addition, he has averaged over the past forty years $3.00 an acre annually from his thinnings. Deducting expense such as property taxes and labor, Mr. Gunby figures his total net return from these fifty acres was $14,500, or $7.25 an acre a year.

Compare this with the income he has averaged from farm crops, which he estimates to be $10.00 an acre a year. He has spent a lot more time on his farm crops over the forty-year period. His loblolly pine crop required no plowing,

planting and cultivating as did his peas, corn, strawberries and melons. Then, too, there were years in which his farm crops failed because of bad weather or high tides from Chesapeake Bay. For four consecutive years Mr. Gunby's farm crops were a complete loss. The only thing that saved him was his timber. The pine woods always came through.

The accumulation of 20,000 board feet an acre in forty years makes an average annual growth on Mr. Gunby's tree farm of 500 feet an acre. However, in the first twenty years the average growth was much less, so that in the last two decades annual growth in some years probably exceeded 1,000 feet an acre.

About 250 acres of cutover land has been purchased by Paul Gunby over the years from neighbors who failed to farm their timber and were forced to moved to

"greener pastures." This, like the original fifty acres, is being thinned annually and harvested for poles, piling and, when mature, sawtimber.

Red-berried holly also grows profusely in this southern Maryland woodland, and Mr. Gunby has carried his policy of selective cutting even to this forest product. Before Christmas each year the hollies are pruned just enough to induce new growth the following spring, but not to an extent injurious to the trees. The branches are graded and shipped to markets as "Maryland Certified Holly," adding to the income from his tree farm. One year this amounted to $600.

A willingness to take advice from experts is one reason for Paul Gunby's success. A few years ago when pine beetles threatened Eastern Shore loblolly pine, he called on Nelson Fritz, then district forester for the State Department of Forests and Parks, for assistance. The forester's advice for burning infested trees was closely followed and only four pines were lost. A nearby owner who

With the Paul Gunbys pioneering, "certified" tree farming is now sponsored by the forest industry. Here are samples of certified tree farms and tree farmers—above, in Alabama, center, in Arkansas, and below, in Wisconsin

did not rid his timber of the insects lost all his pine.

While in fiction it took Paul Bunyan to show us how to harvest virgin forests, in real life it has taken the Paul Gunbys to show us how to grow timber. Hundreds like him, during the past half century, have pioneered in timber growing in the United States, with the result that the organized lumber industry now "recognizes an obligation to maintain its forest lands in productive condition."

In the spring of 1941 a large lumber company blocked up 130,000 acres of young second growth Douglasfir in eastern Washington. Dedicated to timber growing, the area was placed under intensive forest protection and management and labeled the "Clemons Tree Farm." The home folks liked the idea and "tree farms" grew in popularity and magnitude. Other West Coast timberland owners blocked up "junior forests" and started tree farms.

By fall, the idea had gathered such momentum that the National Lumber Manufacturers Association decided to sponsor a nationwide tree farm program to encourage "intensive protection from fire and the application of improved forest management practices on individual properties." The mold was cast.

Organization of state tree farm systems in Alabama and Arkansas followed early in 1942. The majority of tree farmers in these states are small owners like Mr. Gunby — small owners, but together they grow a great amount of timber. In addition to Washington, Alabama and Arkansas, certified tree farms may now be found in Oregon, California, Idaho, North Carolina, Mississippi and Texas. Their number exceeds 500, totaling 8,000,000 acres.

For cutover forest regions like the South, Northeast and Lake States, the tree farm program is a natural, but for the Douglasfir region of the Pacific Northwest, where considerable old growth timber is standing, it was at first considered premature. Yet in recent weeks cutover Douglasfir land, which has been a drug on the market at from $1.00 to $1.50 an acre, brought $4.00 an acre at public auction when a logging company purchased 19,000 acres for tree farming purposes. As irony would have it, the same company logged off most of this land years ago and let it go back to the county for taxes.

Concerning this purchase, a student of forestry in the Douglasfir region recently said: "This and similar sales mark the turning point in Douglasfir forestry because they set a real value on immature, unmerchantable young timber." West Coast forest engineers estimate that good quality cutover land in that region should produce at least 50,000 board feet of timber an acre in seventy-five years, at a cost of $1.50 a thousand feet of lumber. That is profitable forestry.

Regional tree farms systems have been established by the West Coast Lumbermen's Association, the Western Pine Association and the Southern Pine Association. In the Willamette Valley of Oregon, five timberland owners have pooled their lands in Willamette Valley Tree Farms Incorporated, a non-profit organization which retains two qualified professional foresters to protect and manage this combined forest area. In Alabama, the Chamber of Commerce is the sponsor; in Arkansas, the State Forestry Commission; in North Carolina, the North Carolina Forestry Association; in Mississippi, the Mississippi Forestry Association; and in Texas, the Texas Forest Service and the Texas Forestry Association.

Fire protection on a tree farm in Washington

"American Tree Farms," sponsored by the National Lumber Manufacturers Association, serves as a vehicle for national registration and a stamp of national approval for certified tree farms in the states. Locally, high standards of forest fire protection and forest management are set by tree farm sponsors. Any forest landowner, small or large, is eligible for certification as a tree farmer if he meets these standards. Assistance is offered the applicant by state foresters and regional association foresters. If accepted, he is given a certificate of merit and signs with which to mark his reforestation lands.

Protection of forests from fire is the most important requirement for tree farm certification. Without good fire protection forest growth is not possible. Protection on tree farms ranges from the intensive set-up on the 150,000-acre Clemons Tree Farm in Washington, where a fire crew with several tank trucks is constantly on guard, to the 600-acre John Knight Tree Farm near Fordyce, Arkansas, which is watched over personally by Mr. Knight and when fires occur, they are extinguished by the State Forest Service.

Other requirements of local tree farm systems include selective harvesting in Arkansas, Alabama, Mississippi, Texas and North Carolina; operation under a definite forest management plan providing for continuous production of forest crops in the western pine region; and assurance of adequate reproduction of "junior forests" in the Douglasfir region. Tree farm certificates may be withdrawn at any time if the owner fails to meet the required standards.

In many states, the program is centered around the state forester, who recommends acceptable tree farm applicants to the sponsoring group for certification and occasionally checks the tree farmers' progress. Frequent dedications are held in various parts of each state at which approved tree farmers are presented their certificates. Forest owners in the community are invited to these dedications, usually held on a tree farm property, so that they, too, might be inspired to become tree farmers.

The tree farm program does not have all the answers to our forestry problems. At best it is an educational effort, and in no sense is it mandatory on forest owners. After all, not all forest lands are suitable for tree farming, which must be practiced on the better quality lands and pay a profit to the landowner.

Timber, the world's most valuable and versatile raw material, is particularly important to this country, because we use nearly half the lumber, more than half the paper, and two-fifths of the wood in all forms consumed in the world. The forest products industry is the oldest and most continuous American industry.

Three-fourths of our forest land, or 462,000,000 acres, is suited, under present or future conditions, to timber growing. Our forests help provide food, water, shelter and recreation for most of the people in the country and wildlife is largely dependent upon them. It is, therefore, of great national importance to have the forests continue to produce these economic and social values.

After the war, when driving along the highways and byways of the country, look for the signs "This is a Certified Tree Farm." They will be there—and behind them will be part of the forest crop for future Americans to enjoy in the form of an ever increasing host of forest products.

The San Diego Fires . . .

AN INQUEST

The Cry of "Sabotage" Having Dimmed, Here's What Happened—and Why

By CURTIS ZAHN

One of the many fires that swept through the brush-clad mountains of Southern California last fall—a threat to concentrations of war industries

FOR two weeks last October fires along the California-Mexican border had been kept at a safe, respectable distance. Residents of San Diego County evidenced small concern, anyway. Tijuana brush blazes were almost a daily occurrence in the fall, and they seldom got out of control because much of the land, as long as anyone could remember, burned every year. But on November 6, the wind shifted. By noon, yellow smoke hung over the city itself. Hordes of defense workers—100,000 of them from areas never cursed by brush fires — looked wonderingly up at the sky. The air became hot, dry, electric. Late newspaper editions reported that six fires were raging out of control below the border. Glows lit the skies that night. Fine ash settled on San Diego streets for the first time in many years.

By morning, the fires still burned and new ones had broken out all over southern California. The San Diego *Union* shocked citizens with black headlines. Thirty-eight fires were blazing in the county. The FBI was investigating. It looked like sabotage.

Events moved swiftly. Taxed beyond capacity, state and federal forest agencies worked feverishly. Both organizations were seriously undermanned. Tank trucks had but two men instead of the usual five. Only twenty-five percent of the crews they did have were thoroughly experienced. A task force of 900 recruits was gathered from the ranks of Army, Navy and Marine personnel.

Meanwhile, more fires started. Fanned by hot east winds of the legendary "Santa Ana" type, flames mowed down acre upon acre, leaped across gullies, roads, firebreaks. Dulzura Creek, Hauser Creek and the Morena Reservoir watershed were badly hit. Poway, Potrero, Jamul, cozy valley communities of bygone days, became desolate no-man's lands where no living thing stirred. Some 29,000 acres of the Cleveland National Forest lay shrouded in smoke. Rancho Santa Fe—"Gentleman Farmer's Colony" north of the city, became a costly inferno as eucalyptus groves burned, engulfing modern Spanish homes. Avocado and orange groves were wiped out.

When it was all over, weary fire fighters reported that 100,000 acres of land had become destitute in the county. Dozens of homes and barns had disappeared. Some lives were lost. How much damage in dollars had been done is not yet known, but the worst fire season in fifteen years will not soon be forgotten.

But what had really happened? Was it, as the newspapers hinted, a piece of planned sabotage?

Actually—perhaps unfortunately—it was not. The causes lay in a number of things, none of them as dramatic or as easily eliminated as sabotage. The FBI had already dropped most cases,

leaving the U. S. Forest Service to piece together the charred story. And this organization knew the causes of the fires long before they started. Norman J. Farrell, supervisor of the Cleveland National Forest, summed it up in these words: "Weakened organization, lack of experienced men—plus a heavy prevention job brought on by thousands of uninformed and careless residents now living in the back country."

There were other contributing factors, but the "heavy prevention job" deserves special attention. Why, in a time of gasoline rationing and tire shortages, was the back country so heavily populated? Bootleg fuel, high payrolls and a yen for the open spaces have resulted in hundreds of aircraft workers motoring to the hills—night or day—between work shifts. Most of these workers are newcomers to California, unfamiliar with the tinder-box potentialities of local brush. Too few of them realize it is dangerous and unlawful to toss a match out of car windows, or that campfires, during critical periods, are forbidden unless by written permission of state or federal authorities.

At the same time, virtually every cabin and ranch house in San Diego County is now occupied. Some of the occupants are war workers who couldn't obtain housing in the city. Some are relatives of service men stationed at military camps in the area. Some are men from county construction gangs. Then, too, many of the roads are now heavy with transportation going to and from military projects—delivery wagons, convoys, salesmen. Military reservations themselves are often placed in the most volatile areas. In every case, the new population was green—much greener, albeit, than the surrounding growth.

The case history shows two other threats. One is the opinion of some landowners that greasewood or chaparral should be burned often to make way for grasses and feed plants for their stock. There are numerous reasons, as will be shown later, why this should not be done. Two farmers, unfamiliar with these reasons, are, as this is written, up for trial. They confessed to igniting what turned out to be 4,000 acres—the first time it had burned in sixty years.

The other threat is the military itself. Brush fires resulting from artillery practice have been numerous since establishment of target ranges in 1940. Camp Elliot, in a vast, drab area of sumac, has burned a number of times. The Hauser Creek fire started from steel-jacketed rifle ammunition. Cigarette and debris fires also turn into havoc. Occasional blazes start from airplane crashes.

But why did San Diego's fires start all at once?

Not known to the public, several blazes a day during fire season is the rule. They come and go, and no one hears about them—unless they get out of control. Last fall, they got out of control. Because of high wind and exceedingly low humidity, virtually every fire that started kept going. The state and federal forest services, as previously mentioned, were short of manpower. Each maintain fire protection stations in the county, but two of the biggest burns occurred in areas not closely guarded at the time due to lack of personnel. Volunteer crews, although willing, were incapable of much skilled work. Supervisor Farrell stated that several years' training are usually necessary to develop a good fire-fighter. The eight Marines trapped and killed in Hauser Creek were relatively inexperienced, although they had completed a training course in fire-fighting, and had previously battled three brush fires.

The inquest would not be complete without a brief study of the peculiarities of local conditions—conditions unlike those of any other section in the country. San Diego's average rainfall is only fifteen inches a year. Summer storms are rare except in the mile-high altitudes. Growth, therefore, is green only from November to April. By spring, grasses are bone dry. Fall finds them exceedingly crisp. Thus, the fire season is worse during October, or until the first heavy fall rains. Temperature has little to do with ignition, although continued high thermometers tend to lower humidity. Nature acts as its own governor here in the case of lightning. Weather accompanying such storms is usually humid, and only three small fires occurred in 1943 from lightning. The notorious Corte Madera Ranch fire raged on a frosty morning — because the air was dry.

There are opposing theories on "wet" or "dry" years as measured in rainfall. One school holds that the luxuriant growth produced by heavy precipitation is apt to be largely volatile after the average eight months' drought. Others contend that heavy growth chokes itself out, becomes air-starved during a burn. Indeed, a postmortem always reveals "islands" where raging flames stopped as though faced by a concrete wall. The tremendous heat "tunnels" the fire upward, sucking air from all sides but allowing none to reach the center. Accompanying gusts often send the flames in other directions, leaving the "island" virtually untouched. The outstanding hazard from heavy brush is the precious time and manpower required to clear it. But again, it holds water, maintains a certain dampness.

This shows, in part, why the landowners' theories previously discussed are not favored by forestry men. Often the excuse given for brush burning is "protection." The real reason is that a "first year burn" provides more stock feed, although the grazing gain is small and temporary. The brush comes right back. Erosion studies show that slopes often erode a hundred times as fast after burning as they did previously. It takes from eighteen to twenty years to bring burned areas back to the original soil-holding capacity. Much of the burned land is on city watersheds. Statistics show that one of San Diego's most costly reservoirs—Morena Dam—has lost eleven percent of its storage capacity in thirteen years, because of fire-caused erosion. The tonnage in rocks, gravel, sediment expected to find its way into city reservoirs this year is appalling.

There is no proof that periodic burning reduces fire hazards. Mexico's border hills are eroding rapidly and yet there are as many fires as ever. Such sparsely vegetated areas burn "without suffocation." They allow new grass which becomes volatile as celluloid by fall. They don't hold moisture. Oaks, on the other hand, tend to act as firebreaks. These and similar heavy growths obliterate such brushes as chamise, sumac, wild lilac and sage.

TREES

Trees are our masters; in their inner being
Pulsates the life that only God can give.
They are twice blest, not hearing and not seeing
The useless struggles man must wage to live.
Unselfishly they stand and welcome birds,
And beasts, and toil-worn men in summer heat;
They show the dull futility of words
With silent beauty, living and complete.
Prophetic of eternity, they stand
For centuries, yet humbly yielding when
They fall before the blow of mortal hand
And give themselves to meet the needs of men.

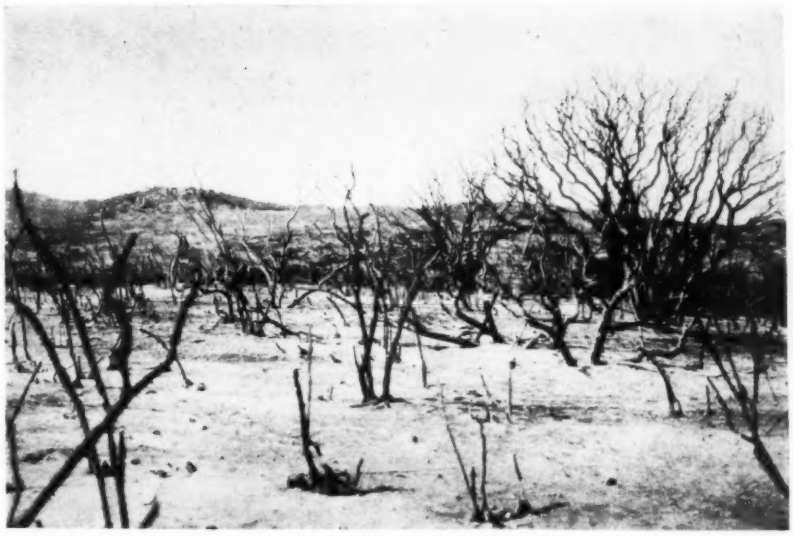
All those who seek their presence feel the ease
And restfulness reflected by the trees.

MAUDE HARDY ARNOLD.

Courtesy The Washington *"Star"*

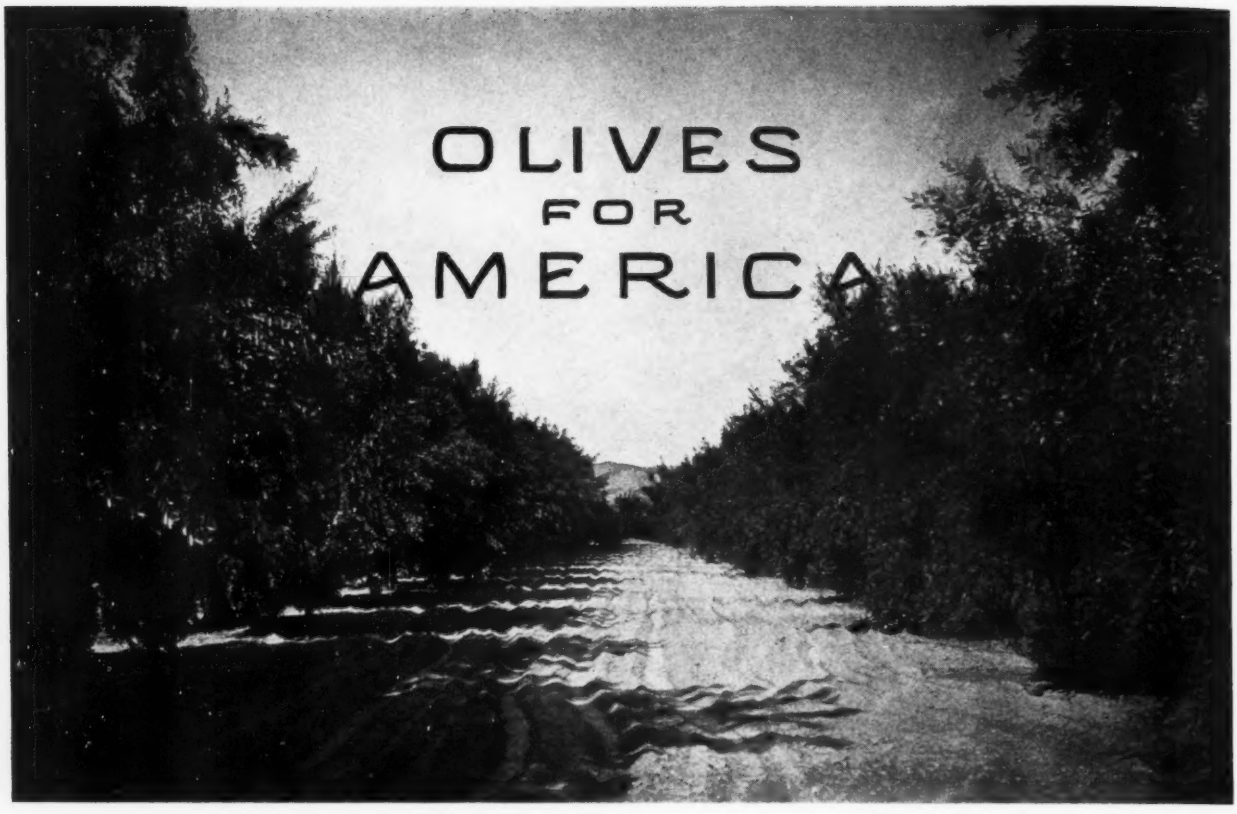
1943 was the worst fire year for San Diego County in more than a decade, but even so, the picture is not too dark. Until the war, the number of fires and the area burned had been steadily decreasing. All kinds of preventative steps had been taken—are still being taken. Firebreaks criss-cross the danger areas; match-book covers and posters carry on a fire prevention educational program; the broken match "V for Victory" idea has been instilled; the "Forest Fire Watchers' Corps" lists thousands of southern California members; James Montgomery Flagg and Walt Disney have designed fire prevention posters.

But the hard work of many years is in some measure being undone. To natural hazards have been added the danger resulting from heavy concentrations of war workers—from the military itself. This is one of the high costs of victory. War, itself, is the saboteur.



Bleak November aftermath—white ash and fire-blackened manzanita and chamise

Why did so many fires flare up at one time? Not sabotage, as first suspected, says the author, but natural hazards aggravated by lack of experienced fire-fighters and heavy use of the area by thousands of war workers

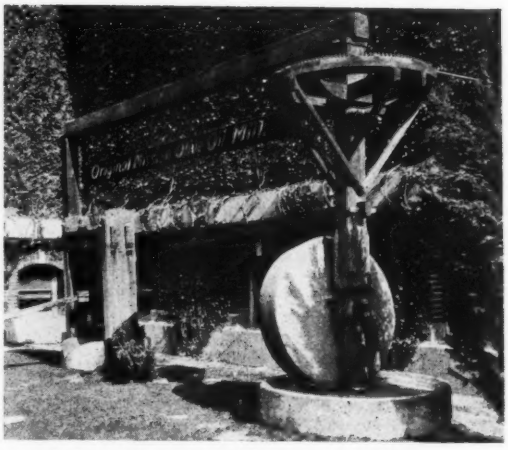


With Imports Cut Off by War, California Groves are Being Brought Back to Bearing in an Effort to Revive an Industry Started by the Early Franciscan Fathers

By P. M. RUPERT

A CENTURY and a half ago, the Franciscan Fathers brought olive trees to southern California from Spain, in an endeavor, perhaps, to help create an atmosphere of home in the New World. Father Junipero Serro had the first olives planted and some of these trees are still growing and bearing fruit at the crumbling old "Mother Mission" at San Diego. Over thirty feet high, one of the old trees stands like a benevolent patriarch guarding the teeming aircraft, Army and Navy center that is San Diego today.

As the Franciscan chain of Missions grew, experiments in olive production were conducted at each new station. The Fathers also tried to grow figs and grapes, and were moderately successful. In this way the "Mission" strains of fruit spread throughout southern and central California, and they were the only ones of importance in the state for many years. But their culture was often neglected, and not until a century later did interest in olive growing receive new impetus. In 1890, what was claimed to be the "world's largest olive grove" of 2,000 acres was set out in the San Fernando Valley. This claim may be questioned, for it is said that larger groves were flourishing in Tunis at the time. Nevertheless, this flowing green orchard today covers a long slope above the communities where the movie people make their homes.



Relic of the past—the original olive mill with its crushing stone and crude press

Naturally, there were many

smaller orchards, but the fortunes of the industry were destined to be spotty. European olives remained favorites for table use, and many of the 40,000 acres which were growing in the state by 1930 were neglected during the depression. The war changed all of this, however. Interruption of foreign imports resulted in a quick revival. Today every available grove is being rehabilitated and brought back to bearing.

And no wonder. Olive oil normally brings about $2.40 a gallon; today it is worth $6.00. Several growers who were burdened with a season's accumulation of around 50,000 gallons, costing $1.00 a gallon to produce, wakened one morning to find their stores were worth a fortune.

Of the many varieties grown in this country, the Mission is the most important, although the Manzanillo is considered by some to have a more desirable flavor. One thing favoring the Mission strains is the high quality of their fruit for both ripe pickles and oil.

Picturesque trunk of an ancient olive tree at San Gabriel

The olive harvest begins in September and runs through December. As the fruit will not ripen after it is picked, and must therefore remain on the trees until well-matured, great care must be taken in this operation. Bruised fruit is useless for pickles. The olives are carefully placed in picking baskets or buckets and transferred to lug boxes for hauling to the pickling plant. Or, if several days are required for transportation, barrels are used and the fruit covered with salt water to prevent bruising and spoiling in transit. Fruit which is to be utilized for oil making requires less care in harvesting, although only sound, ripe olives will render first-quality oil.

The fruit varies in shape and sometimes two different forms may be found on the same tree and even on the same fruit stem. The predominating shape of the fruit on a given tree, however, is decidedly of one form or the other. When the olives arrive at the pickling plant they are run through a machine that separates them into different sizes. After this they are conveyed to vats where

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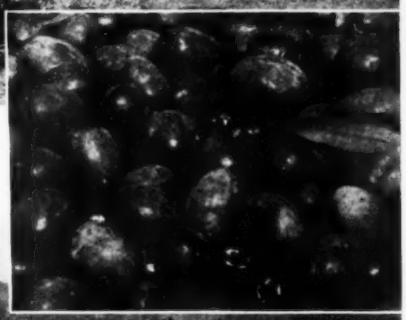
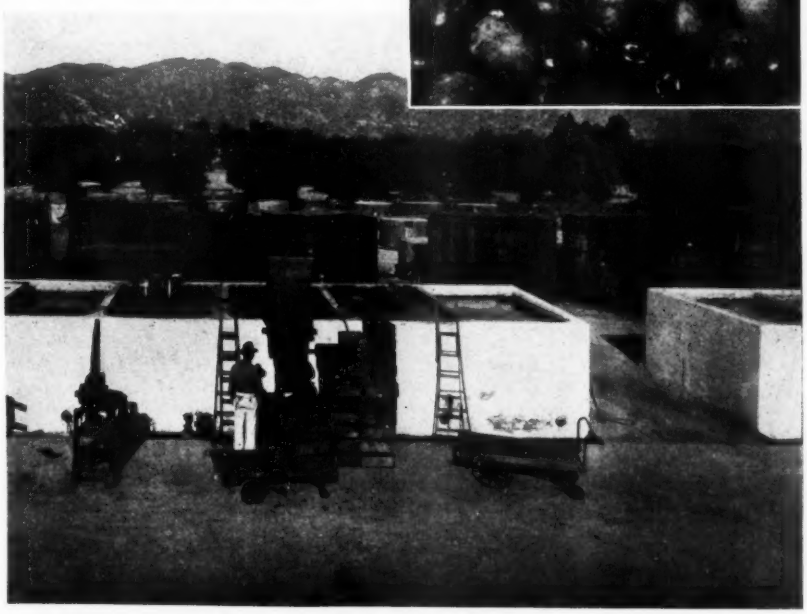


The fruit bruises easily—must be handled with care



The olive harvest, above, begins in September. Below are shown some of the curing vats and tanks at a large operating grove

APPRAISAL ADVISORY COUNCIL MEETS

Conference Approves Plans for Initial Field Work; Regional Consultants Named for Lake and Gulf Eastern States

AN initial meeting of the Advisory Council of the Forest Resource Appraisal was held in Washington on March 4. E. O. Siecke of Wisner, Nebraska, W. B. Greeley of Seattle, and James W. Girard of Washington, D. C., attended. Detained at the last moment, S. T. Dana was represented by Shirley W. Allen of the School of Forestry, University of Michigan. Owing to serious illness, W. G. Howard, state forester of New York, was unable to attend; presenting the state forestry viewpoint were Perry Merrill, president of the Association of State Foresters, and State Foresters Fred Pederson of Virginia, and Joseph Kaylor of Maryland. Regional consultants now meeting in Washington to plan their appraisal work were presented to the Council and participated in the discussions.

Ovid Butler, executive secretary of The American Forestry Association, reviewed the inception and development of the appraisal project. John C. Redington, field secretary, reported briefly upon the public responses to requests for support, and stated that there is a growing awareness among business interests that this project is of outstanding value.

Director John B. Woods discussed the organization of work, pointing out that about three-fourths of the work load appears to fall in the states east of the Rocky Mountains; that this territory can be divided into six regions, and that it appears desirable for six regional staff men to start to work in the field at the earliest possible moment.

Five staff men have been selected, three of whom were announced in the March issue of AMERICAN FORESTS. The new regional consultants are Joseph A. Donery of Milwaukee, Wisconsin, for the Lake States, and Montgomery A. Payne, of Mississippi, for the Gulf Eastern region.

The Advisory Council expressed its satisfaction with the beginnings of field organization, recording its opinion that this appraisal should make use of all existing data which meet its standards of objectivity and reliability. The hope was expressed that the federal forest survey may soon be resumed on a more intensive scale, and that meanwhile a portion of the limited funds available to that agency may be used for field checking of existing data in various parts of the country. It is felt that such federal cooperation added to the generous assistance promised by many state forestry departments will expedite greatly the assembling of state and nationwide summaries.

The Council asked that special attention be given to ascertaining the condition of forest growing stocks as an index to management. It further instructed the staff to study the extent and character of fire protection and to report candidly upon what is found.

According to Mr. Woods, the next few months will be a period of field trial in each of the several regions and the results when obtained for the six states first to be worked will be reviewed and used as a basis for continuing the appraisal. Special reliance will be placed upon aerial photographs as a basis for type-mapping. Recent experience of technical personnel of Forest and Range Experiment Stations, Tennessee Valley Authority, and several state experiment stations is expected to be of great help in developing such techniques.

Montgomery A. Payne

Joseph A. Donery, named regional consultant for the Lake States, has had a quarter century of experience in appraising timber for the U. S. Forest Service. Beginning his career as a ranger in Minnesota in 1904, he has served as lumberman and logging engineer since 1919, both in the Lake States and in the Rocky Mountain region.

Montgomery A. Payne, named regional consultant for the Gulf Eastern States, has been extension forester of Mississippi, his native state, since 1939. Prior to that he was engaged in special educational work in the South, and assisted in the organization of a Forest Service in Brazil. He is a graduate of the Yale School of Forestry.

Joseph A. Donery

BOUGAINVILLE SAWMILL

By TECHNICAL SERGEANT EARLE W. JOHNSON
Marine Corps Combat Correspondent

WITH final adjustments made, a huge log was rolled onto the carriage, and seconds later the first American sawmill on Bougainville Island was in operation. It was a neat piece of machinery, and members of a Navy Construction Battalion — Seabees — were proud they had spent only a week getting it ready.

Although it was the forty-fifth day since Marines landed on Bougainville, the Seabees had been unable to erect the mill earlier, because they had been occupied with the tremendously important task of building a fighter strip on Torokina Point.

This sawmill was far more effective than the first mill Seabees put into operation on Guadalcanal, because it was American-made and geared to turn out 12,000 feet of lumber daily. The Guadalcanal mill was put together from scrap Japanese equipment which included an engine, pulley and blade. But it was capable of turning out lumber for bridge floors, piers, supply buildings, hospitals and other structures built in the early days after the Marine invasion. The Seabees' own mill arrived later on that island and the two were kept in constant operation.

But here on Bougainville there was practically no captured enemy equipment, for the great majority of Jap activity and building has been on the opposite side of the island.

Located deep in the heart of some of Bougainville's worst jungle terrain and only 1,500 yards from the nearest front-line positions, the big piece of machinery will turn out thousands of feet of lumber each day to meet increasing demands of far-spreading military units.

First lumber coming off the mill, said Chief Carpenter's Mate Thomas A. Stacey, of Hollywood, California, will be used for the erection of a hospital. Lumber for chow halls, galleys, supply buildings and tent floors will come next, according to the importance of the structures.

The Seabee chief, whose knowledge of sawmills dates back to earlier days when he worked in the Canadian big timber country, said many units arriving on Bougainville already were working to obtain supplies of lumber, but that their needs would have to wait. "The hospital must come first," he said.

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Soon after the Marines landed on Bougainville Island in the South Pacific, a sawmill capable of cutting 12,000 board feet of lumber a day was in operation. Above, the Navy's Seabee loggers in action

YOUR GARDEN IN WARTIME

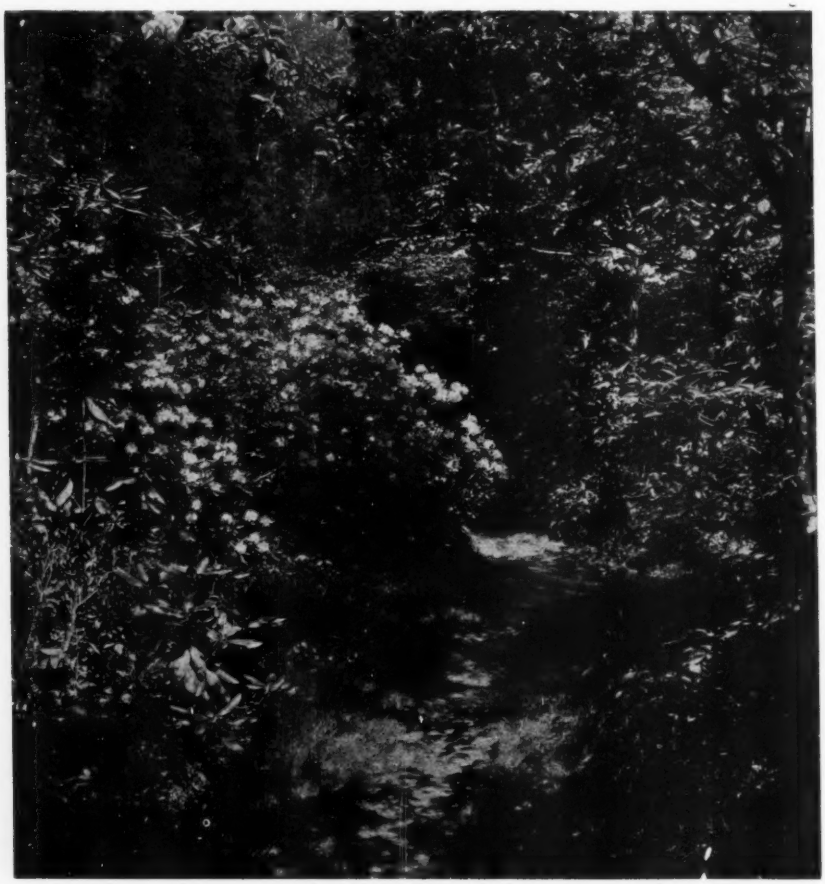
What Should Be Done Now—and What Can Wait—in the Care of Home Grounds

By J. J. LEVISON

IN this, our third year of war, we have come to learn new values in daily living. We have been forced to substitute a Victory Garden for a golf club, a wheel barrow for an automobile—and we are beginning to like it. This means we are taking greater and more personal interest in our home grounds.

Because they contribute directly to the war effort, Victory Gardens come first in any wartime home grounds maintenance program. They supply food needed for our physical well being. But the rest of our grounds, particularly trees and shrubs, should not be neglected. They provide the spiritual food we need for morale—the kind of food that gives us courage and provides the peaceful setting for the home we are fighting for. True, we may not be able to keep up our grounds as we did in prewar days; we can no longer get the necessary help and we must save expenses. But by a better understanding of what we must do and what we can safely eliminate during the war period, we can prescribe a sensible maintenance program without serious or permanent losses. The purpose of this article is to help the homeowner prepare such a program.

What is prescribed, of course, depends on the extent of care accorded the home grounds in the past. The hardiness of existing plants and the temperament of the owner will also influence the course to be followed. If the place is in excellent condition, it is likely that a partial curtailment of work, carefully planned, will result in no serious harm. If the plants are of native and hardy varieties, they will stand necessary neglect better. And, if the owner has a clear knowledge of what is essential and what is less important, he will adjust himself better to a wartime program.



A lovely woodland path, planted by the author. Maintenance is kept low by mass plantings, which mat and usually take care of themselves

We cannot replace trees easily and some of them we can never replace. However, there is no cause for alarm if we will remember that the trees are just as anxious to be with us as we are to be with them. The desire among all growing things to live is one of the strongest forces in nature. Plants will, therefore, intuitively fight for their existence if nature is not thwarted by man's handiwork. If man, for instance, will plant a tree naturally adapted to the soil, moisture and climatic conditions of the locality, he will give the tree a better chance to live than if he tries to set out an exotic plant with the expectation of changing the soil chemicals and moisture content to suit the plant. The first is natural and therefore easy; the second is unnatural and therefore difficult. Thus, in wartime, we should confine our efforts to native and well-tried plants.

When it comes to pruning and repair, much work can wait until after the war. The pruning we attempt now should be confined to the annual thinning of fruit trees in order to allow a maximum quantity of light to penetrate the crown and produce better fruit. Broken, diseased and dangerous branches, of course, must be cut off whenever they are noticed. With newly-planted shade and ornamental trees and those that are dying for lack of moisture, it will pay to clip back the tips of all the outer branches in order to encourage a denser crown which will conserve moisture in the leaves. This moisture would otherwise evaporate excessively, causing the tree to dry out, weaken and fall a prey to insects and disease. This is the very opposite of the type of pruning we do on fruit trees where fruit and not the conservation of moisture is the objective.

Shrubs must be pruned every year to keep them within bounds. But, fortunately, the pruning consists of cutting out to the ground all the old stems, thereby encouraging new ones to come in from the roots. This sort of pruning can be done any time of the year and, consequently, regulated so as not to interfere with more important seasonal work.

In feeding, we can conserve chemical fertilizer for the more needed food crop, and at the same time do the tree or shrub more good, by using an organic fertilizer made of decayed leaves. We should put up a pile of leaves for this purpose as soon as possible because it takes at least a year for the leaves to rot. The addition of manure and soil to the leaf pile is an advantage if one can afford it. This organic fertilizer of decayed leaves is particularly desirable for plants growing in poor soil where moisture is scant.

In the control of insects and disease, we can also do some wise choosing and saving. A dormant spray for scale insects on fruit and shade trees should not be neglected, but one should not hesitate to skip, for a season, the summer or winter sprays for plant lice on pine, beech, larch and maple, none of which ever do serious harm. People are often frightened more by insects that look objectionable than by those which do more damage in a quiet, insidious way. The apple-tree tent caterpillar, which appears in webs early in May, is an example of the former, and the boring insects which do their deadly work in a single season on the most vital tissue of the tree underneath the bark, are examples of the latter.

The webs, with the caterpillars in them, can be removed by twisting them off with a stick, by burning, or by clipping off the infested twig wherever it can be spared. If a part of the tree does become defoliated, the injury is not fatal to the tree. A new set of leaves will come out that same season, and if the defoliation is not continuous over a period of years, the tree may be slightly weakened but not permanently injured. It is different, however, with boring insects. These boring grubs or beetles feed on the cambium, or most vital tissue of the tree. They may girdle it in a single season and the tree is then killed. That is why it is more important to pay attention to groups of boring insects rather than to the caterpillars.

Diseases are more complicated. One really has to know whether the disease is

(*Turn to page* 190)

Time is well spent in maintaining the lawns, plants and trees in such beauty spots as this garden—even in wartime

Prune your fruit trees to keep them low and assure a maximum bearing surface

PLANTING A TREE A SECOND

By LORA Z. JACKSON

TWO men, one a forestry expert, the other a specialist in agricultural engineering, have developed a practical and comparatively inexpensive machine capable of planting a tree a second.

"We were looking for a cheaper, more up-to-date method of planting trees," said Fred Trenk, extension forester of Wisconsin. "The present method is basically the same as that used for hundreds of years. First a hole is dug or, at best, a furrow is plowed. Then each individual tree is held in place while the soil is firmly tamped around its roots. This takes many man-hours, too many for times like these."

To Mr. Trenk this posed such a problem that he went to his colleague, Professor Hjalmar Bruhn, agricultural engineer at the University of Wisconsin.

"There is tract after tract of light soil in this country which has been cropped until it is no longer productive," he said. "These lands are lying idle, and in seasons of drought they will probably erode into small dust bowls. Trees are the natural crop for such soil, but we need a cheap and easy way to plant them."

Professor Bruhn agreed, and together they set out to develop a machine that would meet this need—and one designed for materials available in wartime. They have been highly successful.

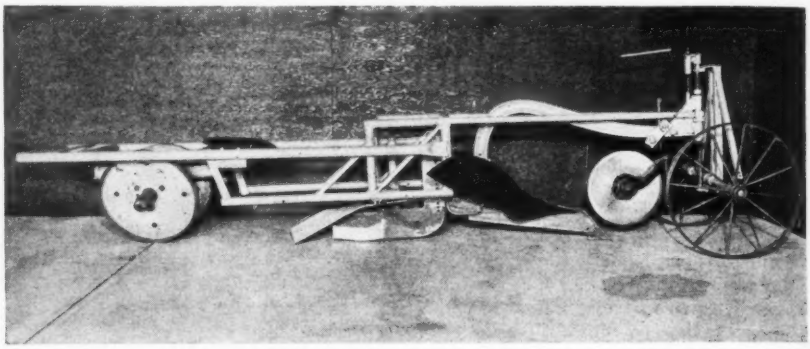
A standard tractor plow is the basic unit of their new tree planter, with right hand and left hand bottoms bolted to one beam to form a middlebreaker plough. This, Mr. Trenk knew from experience, would turn the kind of furrow desired for tree planting. On front of the plough they placed a rolling coulter that would cut through sod and debris—through almost anything, in fact, except stumps and heavy stones. Beneath the plow they put a planting shoe of quarter-inch plate steel. It is shaped like an elongated V. On the end of the shoe at the plow share points is a ten-inch steel chisel which opens a trench in the bottom of the furrow. Into this trench, one by one, go the trees which are to be planted. Seedlings, or anything up to four-year-old stock, can be handled readily.

Three men, or a man and two boys, are needed for planting with this speedier method. One drives the tractor which pulls the tree-planter; one rides the machine, taking trees individually from a box placed in front of him and placing them in the trench as he moves along. Before his hand is off the tiny tree trunk, two covering plates, or "berms," have pressed enough soil around the seedling to hold it upright until the packer wheels come rolling along. They do an efficient job of tamping the soil firmly around the roots.

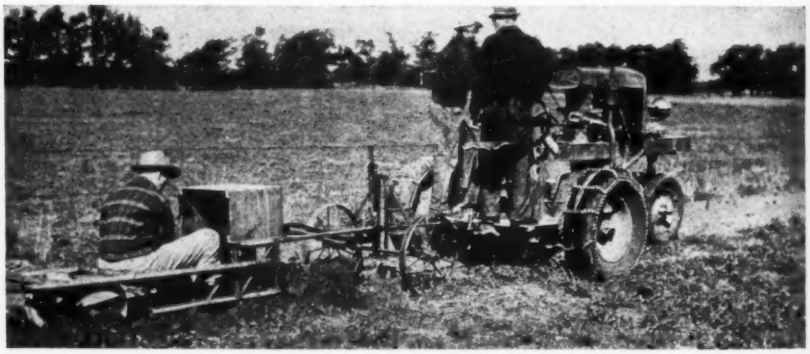
The third man goes ahead. He sorts the trees so that their roots lie in the same direction and places them in boxes at "stations" from which the supply on the machine can be replenished.

At one demonstration the planting went along at the rate of a tree a second, or 3,600 trees an hour. "This speed could be maintained by any crew of

(*Turn to page* 191)



The machine, showing plow, shoe, covering plates and packer wheels



In action—seedlings up to four-year-old stock can be easily handled

The result—three rows of a quarter mile windbreak in fifteen minutes

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AN ABUNDANT LIFE

Louise Klein Miller, Noted Landscape Architect, Has Found the Panacea for Old Age

LOUISE KLEIN MILLER, the first woman to study scientific forestry in America, early learned that human needs are often met and satisfied in the world of nature. Once, when supervisor of nature study in Detroit, she visited a school attended by "wharf rats." Casually picking up an acorn from the teacher's desk, —hence the first woman in the country to take up the study of scientific history. Previous studies in allied fields afforded her a broad foundation for forest work—of which she says her most vivid recollection was her heroic effort to "keep up the pace with the long-legged, muscular, athletic Cornell engineers during field work. However, after catching my breath, I felt I had gained sufficient impetus to carry me a long way!" And she went a long way.

Leaving Cornell, she was dean of the school of horticulture and landscape gardening at Groton, Massachusetts, later going to New York to enter a broader field, lecturing from Ottawa to New Orleans, New York to San Francisco. Locating in Cleveland, she became landscape architect for the Cleveland Board of Education. Here she gave more than five hundred lectures, planned, planted, and was curator for the Memorial Garden to commemorate the one hundred and seventy-two children and two teachers who lost their lives in the Collinwood School fire, organized garden clubs and was responsible for handling the landscaping of building sites belonging to the Board.

All a process of education—should have retired when she was sixty-five, she says, but her zeal and enthusiasm carried her on constructively until her retirement at eighty-five. What a record of accomplishment—but she was even then asked to become landscape architect for Blossom Hill School, where she not only planted many green trees, but gave the girl inmates who sorely needed it a different slant on life and different medi-

(*Turn to page* 184)

The Memorial Garden, designed and built by Louise Klein Miller, commemorating those lost in the Collinwood School fire and (right) the garden named for her at Blossom Hill School, with the marker on which is inscribed —"She works with growing things."

she remarked: "Boys, I understand there are twenty varieties of oaks on Belle Isle." With this, she left the room.

Returning a few weeks later, she was immediately approached by one of the unruly boys. "I found ten of them!" he explained. "Ten what?" Miss Miller asked. "Ten oaks," was the proud reply. He had walked five miles around the island in search of them. An engine with steam on, *on* the track, is a power—*off* the track, it may be havoc.

When the first school of forestry was organized at Cornell University, Miss Miller was the only woman in the class

Let's Get the Facts

WITH YOUR HELP WE WILL!

No one knows what effect the war is having on our Forest Resources—but with your help we will find out.

As a contribution to postwar reconstruction, The American Forestry Association has formally inaugurated a nation-wide appraisal to determine the war's effect upon the country's forests and forest lands.

IMPORTANT? It's the most important conservation job that needs doing.

WHY? When the war has run its course and reconstruction is at hand, conservation must present an informed—not an "I don't know"—front in respect to forest conditions if it is to have and to hold its rightful place in shaping our postwar American economy.

HERE is a joint responsibility of all conservation interests—public and private alike—in preparation for the war's end when our boys will be coming back and like us on the home front will want conservation to have a factual, realistic and sound foundation upon which to build our country's future.

SO, let's make it a joint undertaking. The Association's project offers you this opportunity. Additional underwriting is necessary. The goal is $250,000—over two-thirds of which has now been promised. We invite your help in the financing. Do it now with a cash contribution, a pledge, or, as a number have done, buy a Series F or G War Bond in the name of The American Forestry Association and mail it to us.

THE AMERICAN FORESTRY ASSOCIATION
919 17th Street, N. W.
Washington 6, D. C.

Flashes

Clarence L. Forsling, assistant chief of the U. S. Forest Service in charge of the division of forest research, has been nominated by President Roosevelt to succeed R. H. Rutledge, recently resigned, as director of the Grazing Service of the Department of the Interior.

The War Production Board, as this issue goes to press, announced approval by its chemical division of the first American plant to produce wood-sugar and ethyl alcohol by an adapted German process. The proposal is now before the Defense Plants Corporation, which has been asked to provide $2,247,000 for construction of a plant at Springfield, Oregon. Designed to produce 4,100,000 gallons of alcohol a year, the plant, sponsored by a group of Oregon lumbermen, would utilize 200 tons of sawdust and other mill wastes daily. It would be in operation within a year.

Dr. A. Raymond Kienholz, in charge of research for the Connecticut State Park and Forest Commission since 1931, has been appointed state forester of Connecticut, succeeding Austin Hawes, who recently resigned.

Four camps, each housing around 600 war prisoners, have been established in Texas on timber salvage work resulting from ice and sleet storms in January. The project, for which the federal government provided $3,000,000, will utilize the prisoners to cut damaged sawtimber and pulpwood on approximately 400,000 acres. Forest industries are cooperating in the program, which must be completed in six months.

Judge Guy Cordon, of Roseburg, has been appointed by Governor Earl Snell of Oregon to succeed the late Charles L. McNary in the United States Senate. In the conservation world, Judge Cordon is well known as attorney for the Western Land Grant Counties Association. He recently appeared before a congressional committee in support of placing unpatented O. and C. lands under the O. and C. Administration.

Lands approved for purchase for national forests under the Weeks Law in 1943 totaled less than 9,000 acres, the smallest area acquired during any year since the program was established in 1912. The limitation of purchases to this small acreage was due to the government policy of holding such transactions to a minimum during the war.

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CONSERVATION IN CONGRESS

FURTHER delays in the enactment of important forestry legislation before Congress resulted, on February 23 and March 6, when S. 45—to increase authorized appropriations for cooperative forest fire protection, and H. R. 3848—to increase and extend authorization for the Forest Survey, were again passed over without prejudice in the House. The bills were objected to on the basis that they are too important to be considered on the Consent Calendar. The Pace agricultural subcommittee has decided not to add amendments to these bills, but has handled the agriculture and forestry authorizations in a separate omnibus bill, H. R. 4278, which passed the House on March 7.

S. 250—to promote sustained yield forest management units was amended on the floor of the House March 21 and passed by that body. It was put through by unanimous consent. The Senate concurred in the House amendments on March 22.

Public hearings on H. R. 1688, placing 465,000 acres of unpatented O. and C. lands under the O. and C. Administration, were completed on February 29. Chief Forester Lyle Watts, L. F. Kneipp and E. F. Mynatt based the Forest Service's argument that these lands should remain as national forests on the contention that the O. and C. Railroad failed to acquire title to the unpatented lands, and therefore they never became a part of the O. and C. holdings. J. D. Wolfsohn and Walter Horning, representing the O. and C. Administration, argued their case primarily on court decisions and previous acts of Congress which they believe places jurisdiction over these lands in the administration.

Judges E. L. Pope and Earl Day and Attorney Guy Cordon, representing eighteen Oregon Land Grant Counties, recommended that jurisdiction over the controverted lands be placed in the O. and C. Administration, citing stabilized forest communities and equitable allotment of the revenue derived from the lands in lieu of taxes, as the principal reasons for their stand. The Public Lands Committee had not reported on this legislation at the time of going to press.

The First Deficiency Appropriation bill for 1944, H. R. 4346, reported by the House Committee on Appropriations March 7, contains two items for the U. S. Forest Service, totalling $1,680,000. Of this amount, $1,535,000 represents the cost of fighting forest fires on national forests during the current fiscal year, and $145,000 covers cost of timber marking in national forests caused by the increased volume of timber sales during this year.

H. R. 4329, introduced by Representative Clare Luce of Connecticut, on March 3, would direct the induction of 50,000 to 200,000 limited service men, 4-F's and non-fathers, into selective service to meet emergency demands for harvesting, mining, and logging activities.

CONSERVATION CALENDAR

Important Bills in Congress With Action February 15-March 14, 1944

Bills Enacted

H. R. 1047—MOTT—For the relief of the State of Oregon, Department of Forestry of the State of Oregon and certain organized protection agencies in the state for protection of unappropriated public-forest lands, intermingled with Oregon and California lands from July 1, 1938 to June 30, 1939. Passed House February 19, 1943. Passed Senate amended February 15, 1944. Approved by the President March 1, 1944. Public Law No. 243.

H. R. 1388—JENNINGS—To authorize the acceptance of donations of land for the construction of a scenic parkway to provide an appropriate view of the Great Smoky Mountains National Park from the Tennessee side of the park. Passed House September 21, 1943. Passed Senate February 15, 1944. Approved by the President February 22, 1944. Public Law No. 232.

H. R. 2924—To give the effect of the Provisional Fur Seal Agreement of 1942 between the United States of America and Canada; to protect the fur seals of the Pribilof Islands. Passed House October 18, 1943. Passed Senate February 15, 1944. Approved by the President February 26, 1944. Public Law No. 237.

Appropriations

H. R. 4183—SNYDER—A bill making appropriations for the fiscal year ending June 30, 1945, for civil functions administered by the War Department, and for other purposes. Passed House February 16, 1944. Passed Senate in amend-

ed form March 9, 1944. In conference March 10, 1944.

H. R. 4346—First Deficiency bill for the fiscal year ending June 30, 1944, and for prior fiscal years, etc. Passed House March 10, 1944. Referred to the Senate Committee on Appropriations March 13, 1944.

Forestry

H. R. 4278—PACE—To provide for the control and eradication of certain animal and plant pests and diseases, to facilitate cooperation with the states in fire control, to provide for the more efficient protection and management of the national forests, to facilitate the carrying out of agricultural conservation and related agricultural programs, to facilitate the operation of the Farm Credit Administration and the Rural Electrification Administration, to aid in the orderly marketing of agricultural commodities, and for other purposes. Passed House March 7, 1944. Referred to the Senate Committee on Agriculture and Forestry March 9, 1944.

National Forests

S. 1618—THOMAS, Utah—To amend the acts of August 26, 1935, May 11, 1938, June 15, 1938, and June 25, 1938, which authorize the appropriation of receipts from certain national forests for the purchase of lands within the boundaries of such forests, to provide that any such receipts not appropriated or appropriated but not expended or obligated shall be disposed of in the same manner as other national forest receipts, and for other purposes. Passed Senate March 14, 1944. Referred to the House Committee on Agriculture, March 16, 1944.

S. 1734—HOLMAN (H. R. 4176—ANGELL)—Authorizing acquisition by purchase, condemnation, or otherwise of certain forest lands within the Mount Hood National Forest in Oregon. Introduced February 23, 1944. Referred to the Committee on Agriculture and Forestry.

Public Domain

H. R. 1688—ELLSWORTH—Relating to the administrative jurisdiction of certain public lands in the State of Oregon. Public Hearings held by the House Committee on the Public Lands February 14 and 24, 1944.

Water and Stream Control

H. R. 4193—GAVIN—To amend the act entitled "An Act authorizing the construction of certain public works on rivers and harbors for flood control, etc." approved June 28, 1938, as amended. Introduced February 15, 1944. Referred to the Committee on Flood Control.

LOGGING INDUSTRY AND FOREST SERVICES SAFEGUARD FUTURE LUMBER

Great Northern Territory Contains Half the Nation's Standing Timber

Heavy wartime cutting of forests might ordinarily endanger America's future lumber supply.

But, in the densely wooded sections of the Pacific Northwest, the logging industry is following a long range program to perpetuate its resources of choice fir, pine, cedar, spruce and hemlock. Careful planning guides every step in forest management—from the time seeds are planted to the loading of finished lumber and timber products on Great Northern cars.

This program of intelligent conservation has the cooperation of state, regional and federal forest services. It is based on scientific reseeding, replanting and selective cutting. It includes protection against forest fires, insects and diseases.

Since half the nation's remaining timber stands in four of the states served by Great Northern Railway—Washington, Oregon, Idaho and Montana—this program is of tremendous importance. Its success will help safeguard the nation's lumber supply for postwar construction and rehabilitation.

Tree nurseries play a vital part in Pacific Northwest reforestation.

High pressure sprays clean off dirt and foreign matter as saw logs enter mill. This keeps saws sharp longer and improves quality of by-products.

To prevent forest depletion, "ripe" trees are selected for cutting.

The dependable handling of lumber and other timber products is one of the many things that make Great Northern great.

Giant circular saws crosscut the logs into lengths desired.

PAUL BUNYAN MARCHES ON, by Ida Virginia Turney. Published by Binfords & Morts, Portland, Oregon. 77 pages, illustrated. Price $2.00.

Further adventures of the legendary lumberman and his blue ox, Babe, in the Oregon Country are recounted in this companion volume to PAUL BUNYAN, THE WORK GIANT—by the same author. The tales in this collection are short, homespun, and vigorous and their intrinsic humor is accentuated by the author's succinct narrative style and the many illustrations in color.

PATHOLOGY IN FOREST PRACTICE, by Dow Vawater Baxter. Published by John Wiley and Sons, Inc., New York. Illus. 618 pages. Price $5.50.

The field of forestry is too broad for any forester to become an expert in all its branches. Perhaps the study of forest and shade tree diseases and insect pests is the most remote from the main lines of work with which the average forester has to deal—despite the many "What is the matter with my tree?" questions he is expected to answer. The forester who specializes in either tree diseases or in forest insects—for the two, strange as it may seem to the layman, are quite separate subjects—must first become a specialist in either plant diseases in general or in insects in general. By the time he has done either he has begun to use a vocabulary which the ordinary forester—let alone the layman—does not understand, and has frequently forgotten much about his original profession. The consequence has been that forest pathology and forest entomology have both tended to produce a literature not adapted to the needs of either the forest student or the men in the woods and mills who have to deal with diseases and "bugs" at first hand.

The above is presented by way of compliment to Professor Baxter who has produced a book which discusses in ordinary terms the control of fungi which live so happily but so destructively on leaves, roots, branches and trunks of shade and forest trees. Some of them do not even stop there but continue to make trouble in log and lumber piles, pulpwood vats and hammer handles. The book is recommended for reference or if time can be found for complete reading by all foresters. The more progressive lumbermen and pulpmill operators would also find it useful. When the forest schools open up again it should have a good sale as a textbook.

GARDENER'S HANDBOOK, by L. H. Bailey. The Macmillan Company, New York City. 292 pages, illus. Price $1.49.

In one volume, this encyclopaedic manual of gardening is successor to *The Gardener*. It is a mine of garden knowledge on every phase of growing flowers, shrubs, vegetables and fruit, indoors, and out. Easy to use, it will be a real help to everyone interested in a garden.

SHRUBS AND TREES FOR THE SMALL PLACE, by P. J. Van Melle. Charles Scribner's Sons, New York, 1943. 298 pages. Price $2.50.

Written by a practical nurseryman, formerly connected with the New York Botanical Garden, this book is intended as a guide to the owners of small residential properties in use of shrubs and trees on their house grounds.

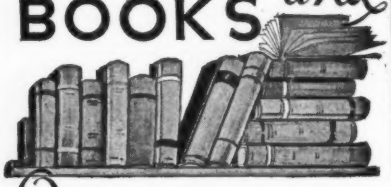
It lists and describes some 360 species of deciduous shrubs and small trees usable in northeastern United States. By means of a score chart the prospective planter is enabled to contrast the good and bad points of the various species.

Chapters on planting, pruning and the use of trees on restricted areas add to the value of the book.

PLANNING FOR AMERICA, by George B. Galloway and Associates. Published by Henry Holt & Company, Inc., New York City. 713 pages. Price, $4.00.

"The United States must plan or perish"—describing this challenge to our future and methods of preserving our vital, basic institutions and the American way of life, in this book Mr. Galloway shows our problem to be one of engineering—to be solved by proper planning, entirely consistent with democratic practice. The broad scope of his work is indicated by the more than thirty associates who collaborated with him and contributed in their respective fields of economics, social work, national resources, area planning and defense.

NEW BOOKS and OTHER PUBLICATIONS



A list of Selected Books on Forestry and related fields of Conservation is available to members of The American Forestry Association on request.

The publications listed below must be ordered direct from the addresses as given and not through the Association.

Analysis of Mink Depredation Upon Muskrats in North-Central United States, by Paul L. Errington. Iowa State Coll. of Agr., Res. Bull. No. 320, Ames, Iowa.

Highlights of the Forest Situation in Western Montana. For. Survey Statistical Service No. 14. Northern Rocky Mtn. For. and Range Expt. Sta., Missoula, Mont.

Timber Requirements of the Cooperage Industry, by A. M. Sowder. For. Survey Progress Report. For. Service, U.S.D.A., Wash., D. C.

Clearwater Timber Protective Association. 1941-1942 Annual Reports. Clearwater Timber Protective Assn., Orofino, Idaho.

Wildlife—and Land Use Patterns, by Ernest G. Holt and William R. Van Dersal. Misc. Pub. 444, Soil Cons. Serv., U. S. Dept. Agr. Supt. of Doc., Wash., D. C. Price 15 cents.

Strip Cropping for War Production, by Harold E. Tower and Harry H. Gardner. Soil Cons. Serv. U.S.D.A. Supt. of Docs., Wash., D. C. Price 10 cents.

The Rainbow Forest Plantations, by Henry W. Hicock. Bull. 464, Connecticut Agricultural Experiment Station, New Haven, Conn.

Growth of Ponderosa Pine by Keen Tree Class, by Philip A. Briglieb. Pac. N. W. For. Exp. Sta., For. Res. Note 32. Portland, Ore. A notable contribution on the growth of ponderosa pine trees of various ages and degrees of vigor in the virgin forest.

Controlling Coastal Sand Dunes in the Pacific Northwest, by Willard T. McLaughlin and Robert L. Brown. Cir. 660, U. S. Dept. Agr. Supt. of Docs., Wash., D. C. Price 10 cents.

Forest Resources of Warren County, Ohio, by Nelson Schlemmer. Report No. 20. Central States For. Exp. Sta., Wooster, Ohio.

West Coast Log Values—Western Hemlock from the Washington Cascades, by J. Elton Lodewick, For. Serv., U. S. D. A., Pac. N. W. For. Exp. Sta., Portland, Ore.

Lumber Literature — a Bibliography. Published by the National Lumber Mfrs. Assn., 1319 Eighteenth St., N. W., Wash., D. C.

Eighteenth National Shade Tree Conference and Fifth Southern Shade Tree Conference—Combined Proceedings. Paul E. Tilford, Editor. The Collier Printing Co., Wooster, Ohio.

Trees of Puerto Rico, by L. R. Holdridge, Vol. II. Forest Service, U. S. D. A. Tropical Forest Exp. Sta., Rio Piedras, Puerto Rico.

1943 INDEX AMERICAN FORESTS

Readers of AMERICAN FORESTS Magazine desiring copies of the 1943 Index should send their request to The American Forestry Association, 919 17th St., N. W., Washington 6, D. C. There is no charge. Copies will be mailed shortly to those who have already requested them.

Wards of the Spruce

(*From page* 157)

around a limb, but are caught if attempting flight. To the contrary, I once observed an adult attacking three flickers high on the dead spars of a group of giant conifers. He struck at them viciously a score of times, but in every instance they took to wing when he was but a few feet away. Avoiding him by a fast, banking, spiral drop, they recovered more quickly than the hawk and outdistanced him in flight to the next treetop. The flickers neither fled their high, conspicuous perches nor displayed great concern. Two engaged in a ridiculous bowing performance, scraping and clawing around a towering snag, while nearby the other of the trio eluded the strike of the sharp-shin. A fourth flicker joined the party, but it was not until all had finally departed across semi-open country that the hawk gave up the futile chase.

Penetrating the heavy spruce belts one sometimes encounters an Arctic three-toed woodpecker whose activities are mostly limited to the boreal zones. In the evergreen solitude a narrow shaft of filtered sunlight will reflect brilliantly from his satiny, blue-black back. He goes hitching up a scaly trunk, sidles around to the opposite side, and then silently glides off into the deeper wilderness. This species is often more abundant in old burns, the desolate fire-swept skeletal forests of blackened snags. Here he is too busy to more than note your passing.

Fire, to be sure, is the red death that yearly menaces the spruce woods. Where fire has devastated, lodgepole pine hastens to usurp the nobler tree's ancient tenure, but it is only a transient victory. After half a century, when forest conditions have been restored, Engelmann spruce returns, for it is the climax growth in favorable areas.

The home of the Alaska three-toed woodpecker is the high virgin wilds and the adjoining "graveyards" of spruce forests. In a clearing left by a road camp I once saw a pair completing a nest hole in the butt of a dead Engelmann just below a crosspole nailed there as a tent support. A close relative of the Alaska is the Alpine three-toed woodpecker whose range extends south along the Rockies to Arizona, where, on the north rim of the Grand Canyon, the bird inhabits woodlands of spruce and fir.

Matching the silence of their surroundings, Rocky Mountain jays or "camp robbers" glide noiselessly through the roof of the spruce forest or appear unexpectedly at your elbow. These trailside gentry have come to share your lunch. True hospitality, need it be mentioned, waits not on formalities. Their crested cousins, the garrulous black-headed jays, are much more striking in their colors of turquoise, blue and black.

But hark! In the depths of the timberland thrushes are singing—the mellow overtures of the olive-backs providing the pattern whereon is wrought the silver chiming of the hermit thrush. Each is a sublime chorister that hallows the mountain domains of spruce and alpine fir. I have heard the hermits in vast Canadian zone forests that clothe the slopes of Glacier National Park, on the high levels of the Markagunt Plateau in Utah, and in the depths of Arizona's Kaibab Plateau—and always it is the same, a glorious song that bespeaks the divine.

In late spring the dark purple and scarlet flowers of Engelmann cluster upon the upper third of its conical spire. The pendant, papery, thin-scaled cones turn light brown to chestnut and ripen toward late August. During years of heavy cone crops the nomad red and white-winged crossbills gather to feed upon the small seeds. In northern woodlands a warbled song is sometimes heard — the melody of these rose-red wanderers.

Invade the high mountain basins or climb to the more open ridges, even to timberline, and in the cool spruce and balsam forests you will hear a sparrow song richer in quality than all others. It is the same clear melody that comes

hauntingly from willow and alder thickets of lower altitudes. This is the lay of the fox sparrow. Here in the high forests he indulges in song more freely, and for a greater portion of the summer, than in his lower broadleaf range. Seeing him silhouetted against the emerald of an alpine lake, Florence Merriam Bailey phrased his cadences: "Green, green, wa'ter, see-it-there."

Ruffed grouse are at home in the spruces. The olive-sided flycatcher is a breeding bird of this tree association. So, too, the Audubon warbler. The common house finch and Cassin purple finch occur here, and on the southwestern plateaus the gray-headed junco ranges up into its more scattered stands. In Colorado the ruby-crowned kinglet reaches greater altitudes than in the north; nesting from 9,000 feet to timberline, he binds his semi-pendant cup to a spruce bough. There Clark's crow has his playground, and the raucous *kar'r'r* of his roistering crew is a characteristic sound.

Winter wraps the dark spruces in heavy mantles of snow, yet the merry notes of mountain chickadees give cheer. Only the trail of a foraging weasel, traced wisp-like upon the snow, the far distant, regular tapping of a boreal woodpecker, and the trampled paths of varying hare amid osiers beside a frozen streamlet, betray the presence of other dwellers in the whitened wilderness. In command of their northern domain, at higher elevations, the sprightly Columbian chickadees with caps of brown exhibit the same ability of making a living cheerily in dead of winter.

From the spruce swamps of the Canadian north, to the limit of trees, the great gray owl haunts evergreen fastnesses. A ghost of the solitudes, he sometimes nests southward along the Rockies as far as Yellowstone National Park. But not all is dim and somber among these great conifers. Where giant hemlocks and arbor vitae join in dense stands with mighty Engelmann spruce, a tiny bird of yellow, green and black darts amid the highest branches. Townsend's warbler, "the most beautiful warbler of the West," is so elusive at those lofty levels that a glimpse may be your only acquaintance with this shy celebrity.

These are the wards of the Engelmanns—birds that live in the romantic, misty domain of the spruces. Where a mountain meadow winds between towering walls of spruce, majestically silent in the dusk, one knows that he has found the depths of the wilderness.

An Abundant Life

(*From page* 172)

ums of thought and expression. Honored as the "Spirit of the Garden," Louise Klein Miller left the schools after a career so full that her retirement was almost a civic catastrophe, bearing her eighty-five years as graciously as if she were twenty years younger. And now, at eighty-nine, she says: "I am now making plans for the biggest piece of work of my career—a School of Ecology. Not a place for teachers to work for a degree, but a place of opportunity for boys and girls, men and women to learn the problems of life and the joys of living. One feature planned is a tree cathedral, an amphitheatre with arches of trees, opera and drama. Another is a World War Memorial, which will serve many purposes,—study of plant life, material for propagation, bird sanctuary—a place for spiritual uplift.

Louise Klein Miller looks back on a life that has been brilliantly varied. Her philosophy—expressed vividly in her activities and in her writings—is based on her instinctive wisdom and abundant living—the result of years, mellowed and made practical by her tremendous interest in humanity and her ability to "see life clearly and see it whole."

★ NUMBER 6 IN A SERIES, TRACING FIFTEEN YEARS OF KELLETT ROTARY WING PROGRESS ★

In Department of Agriculture service, Dutch elm disease division, a Kellett demonstrated its ability to cut scouting costs to less than 27% of comparative ground scouting for blight!

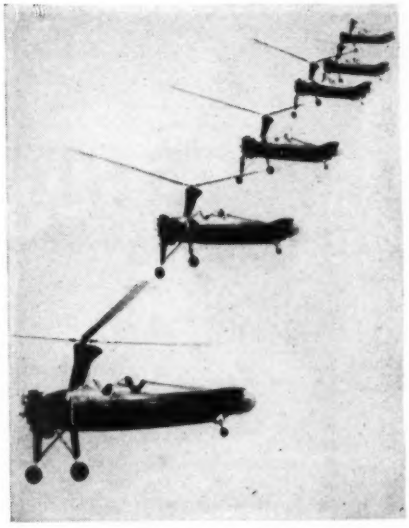
Pioneering New Air Freedom

HERE at Kellett, engineers with pioneering minds have been developing and manufacturing rotary wing aircraft for fifteen years. Year by year they have been accumulating scientific and in-the-air experience.

Much of this progress has been in cooperation with the research and engineering development experts of the United States Army Air Forces; and during the war, Kellett production is, of course, concentrated on military needs.

But Kellett's expanding corps of engineers looks forward enthusiastically to peace, when current rotary wing accomplishments may contribute to the cutting of costs and saving of time in a wide field of usefulness, freed from limitations of airports, and from the usual speed-altitude requirements of aircraft.

For instance: In patrolling electric lines, or oil pipe lines, in ranching and agriculture . . . wherever it is necessary for aircraft to take off or land in just a few feet . . . where ability to fly close to ground or treetops is essential . . . and where ranges of speed from practically 0 MPH to 125 MPH are necessary. Kellett Aircraft Corporation, Upper Darby (Philadelphia), Pennsylvania.



A flight of military-type Kellett rotary wing aircraft. They can land on a flat roof, plowed ground or deep grass with scarcely a turn of the wheels.

KELLETT

OLDEST ROTARY WING AIRCRAFT MANUFACTURING COMPANY

Bougainville Sawmill

(*From page* 167)

The Seabees need never worry about the supply of timber, for there is an abundance of it here. The towering jungle giants range from fifty to a hundred feet high and from one to four feet in diameter, but on this sawmill only logs not exceeding twenty-four inches in thickness can be used. A five-foot blade now in use can cut logs two feet thick, but it may be replaced with a six-foot blade to trim down the "thirty-six-inchers."

After a tree has been felled with a cross-cut saw, Seabees use a motor-driven saw to cut it into sixteen-foot lengths. Following these men is a tractor on which a large crane has been installed. Seabees call it a "cherry picker." As the logs are cut, the "cherry picker" lifts them onto a truck. After they have been securely bound with chains, the truck takes the logs to the sawmill where they are dumped onto a ramp and made ready for cutting.

The sawmill, its parts brought from the beach on a huge trailer, was in operation on Guadalcanal for six weeks before being sent to Bougainville.

Charles L. McNary—A Tribute

(*From page* 155)

and drain, to be rechecked and kept current every decade.

His leadership is attested by the fact that practically every important forest law of the last twenty-five years bears the name "McNary." He became the non-partisan expert, indeed the sage, of Congress on everything pertaining to forest conservation. How many of us have heard: "Ask McNary"; "If McNary says it's right, I'll vote for it" from every shade of political bias—if the question concerned forestry? In his last session the Senate adopted, on Senator McNary's recommendation, another important forest bill which he long had worked for. This is the measure which authorized the administrators of public forests to set up cooperative management units of federal and private land—for a sustained yield of forest products. The approval of this legislation by unanimous consent was, unconsciously, a final tribute to the Senate's confidence in its minority leader.

Senator McNary's interest was equally unflagging in the day-by-day administration of forest laws and in providing the sinews of war. He was the unfailing champion of forestry in the yearly melee of appropriations for research and fire protection, in getting sympathetic hearings by his Committee of the new problems and needs that had to be met. He seldom made speeches or wrote extended articles. He was primarily a man of action.

To many of us, the most lasting memories of Charles McNary are associated with the informal discussions in his Washington office, after his day's work on the Senate floor; with groups on the beautiful lawn at Fir-Cone in the shade of firs and maples. We will cherish the magnetism of his warm personality, his breadth of human interest and the kindly, understanding sagacity that touched a thousand local and national affairs. We will think of our friend—and the friend of all the world.

W. S. Rosecrans Heads California Forestry Board

GOVERNOR Earl Warren has appointed W. S. Rosecrans of Los Angeles, president of The American Forestry Association since 1941, a member of the new California State Board of Forestry, described as the most representative in the history of the state, and he has since been named its chairman. By virtue of this office, Mr. Rosecrans also becomes an ex-officio member of the Legislative Committee set up to study forest conditions and to share with the board the responsibility of carrying out the governor's request to direct action needed to place California in the forefront among progressive states in the handling of forestry problems.

Governor Warren also appointed Mr. Rosecrans to his Advisory Committee on Re-employment and Reconversion in order that forestry may be fully considered in postwar plans and operations in California.

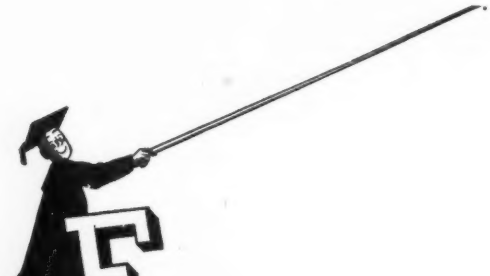
Some of the immediate problems to be faced by the board were listed as follows: Study of possible realignment of policies and purposes of the State Division of Forestry; a determination of the forest situation in the state; formulation of an active program to keep forest lands in efficient production of timber, including cooperation with private owners, legislation assisting private timberland owners, and forestation by the inauguration of a system of state forests. Special emphasis will be placed on the multiple use of the state's forest lands, including the various land uses for timber production, water and soil conservation, forage for livestock, recreation, and fish and game.

California's program, it was stated, recognizes that state rights in national resources involve state responsibilities as well.

Other members of the Board of Forestry appointed by Governor Warren are: J. J. Prendergast of Redlands, representing water interests; Kenneth R. Walker of Westwood, representing pine timber interests; Wendell Robie of Auburn, member at large; Domingo Hardison of Santa Paula, representing agriculture; Frank W. Reynolds of Ukiah, representing redwood interests; and Roderick McArthur of McArthur, representing livestock interests.

William B. Greeley, secretary-manager of the West Coast Lumbermen's Association, and a director of The American Forestry Association, and John B. Woods, director of the Association's Forest Resource Appraisal, have been invited to meet with the new board at an early date.

Some ABC stuff about E



IS A VERY important letter in this war.

It's the name of the War Bonds you buy—"War Savings Bond Series E."

As you know, a Series E Bond will work for you for ten full years, piling up interest all that time, till finally you'll get four dollars back for every three you put up. Pretty nice.

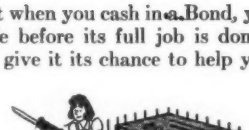
The first job of the money you put into "E" is, of course, to help finance the war. But it also gives you a wonderful way to save money.

And when the war is over, that money you now put away can do another job, can help America swing over from war to peace.

There'll come a day when you'll bless these Bonds—when they may help you over a tough spot.

That's why you should make up your mind to hang on to every Bond you buy. You can, of course, cash in your Bonds any time after you've held them for 60 days. You get all your money back, and, after one year, all your money plus interest.

But when you cash in a Bond, you end its life before its full job is done. You don't give it its chance to help you and



the country in the years that lie ahead. You kill off its $4-for-every-$3 earning power.

All of which it's good to remember when you might be tempted to cash in some of your War Bonds. They are yours, to do what you want with.

But . . . it's ABC sense that . . .

They'll do the best job for you and for America if you let them reach the full flower of maturity!

WAR BONDS to Have and to Hold

The Treasury Department acknowledges with appreciation the publication of this message by

AMERICAN FORESTS MAGAZINE

Olives

(*From page* 165)

the pickling process starts by destroying their natural bitterness. This is accomplished by soaking the fruit in an alkaline bath, which is later washed away in clear water. Then the olives are removed and graded as to color. The final processes of cooking and sterilization in light brine are accomplished in the cans, from which the air has been expelled before they are hermetically sealed. This treatment gives the fruit its bland, rich, nutlike flavor.

Throughout the entire pickling process, fruit of different varieties and sizes is kept separate so that uniformity may be obtained in the canned and bottled product.

Some people like olives that have been processed by other methods. The so-called Greek process consists of submerging very ripe fruit in a strong brine, which may be mixed with partly ground rock salt, for about six weeks. This product, according to the United States Department of Agriculture, "somewhat shriveled in appearance and acrid in taste, is prized by peoples from the Mediterranean countries." Some fruit is also prepared by the Sicilian method—"a process in which the fruit is cured with salt and flavored with garlic, sweet anise, Spanish peppers, and sometimes other condiments." This treatment insures the olives a very rich flavor.

In order that those who care to may cure olives in their own way, a portion of the crop is reserved for their consumption, and shipped East fresh in boxes each year.

Olive oil, on the other hand, is necessarily processed in its native region and forwarded to other sections of the country in sealed containers. In the old days, some orchards were devoted entirely to oil production, but this practice has been largely done away with since olive pickling is comparatively more profitable. Now, a crop is used for both purposes, and olive culture is maintained at a high standard.

Olive groves receive attention the year round. An orchard must be kept free from weeds, which can be done by plowing at a moderate depth once a year—preferably a few weeks before blossom time—and by giving the ground shallow stirrings thereafter. Fertilizers are needed, of course, and sufficient water to keep the trees well nourished.

As the olive tree is naturally long-lived and reaches a large size, its period of profitable production should continue over many years. It is an evergreen and very ornamental—a vigorous, handsome, upright grower, suitable for borders, avenues and windbreaks, as well as for

general orchard planting. Olive groves have always been among the southern California features which visitors enjoy most. One beautiful grove, called the "Mount of Olives," is situated near Hollywood. It covers a block-sized knoll and there is an art museum in the midst of its trees. To stroll through this lovely spot is as satisfying as to drive down the long, palm-bordered highway approaching it.

The war has given domestic olives a big boost. If, as expected, olive growing develops into a major American industry, never again will it be necessary to ask a foreign country to supply us with this delicious fruit. Olives are here to stay.

Your Garden in Wartime

(*From page* 169)

of a serious nature or one that merely does some local seasonal damage without jeopardizing neighboring trees or the particular host on which the disease is found. The Dutch elm disease on elms, the blister rust on pine, or the maple wilt on the maple belong to the serious type. But the blight on sycamore leaves, the leaf blotches on maples, horsechestnuts and laurels, as well as mildew on the lilacs, elms and willows, can wait until victory is attained.

Everyone who has a home has a lawn, and this is always a source of care and expense. Most of us have more lawn than we can keep in good condition in wartime, so it would seem wise, under present conditions, to curtail the size of our lawn. A smaller one, well kept, seems preferable to a larger one full of weeds. Another way to save expense and time, and also to save fertilizer which is not available for lawns during wartime, is to use the hardier grasses instead of bent, and to introduce a fair proportion of clover. Bent grass is costly and so fine that it requires constant watering, weeding and spraying for a disease known as "brown patch." Clover always looks dark green, is free from Japanese beetle, and stands wear and tear well.

Much information has been made available on the care of Victory Gardens, which, of course, should come first on the home grounds program. Nevertheless, here are a few suggestions that should prove helpful in producing more food for victory:

A sunny plot fifty by a hundred feet is sufficient for a family of five or six, but it should be no larger than can be cared for properly. And whether a plot is large or small, the best results are obtained by working out a plan showing what to plant in each row. In drawing up this plan, notations should be made of the date when each vegetable can be expected to mature. With this information, the gardener can see to it that other vegetables, planted together in the same space, are on their way when the first crop is about finished.

Spading, from eight to ten inches deep, can start as soon as the frost is out of the ground. Heavy soil, however, should not be worked while wet. Watering during the growing season is all-important, but it should be done with great care. It is best to let the hose trickle in the groove after taking the nozzle off and covering the end with burlap. Two or three hours are required for the water to saturate the ground to a depth of at least six inches.

Constant weeding is essential to encourage growth. Cultivation is necessary to provide air to the roots of the plants; it also provides a natural mulch. Do not cultivate right after a rain. A mulch of peat moss, leaves, or salt hay, one to one and a half inches thick, and applied when the soil is wet, is often a desirable substitute for cultivation.

When the plants are about four inches high, apply a complete chemical fertilizer between the rows about two or three inches away from the plants—for tomatoes, six to nine inches. After that, sprinkle with water. Chemical fertilizer can be applied either dry or in solution at the rate of one tablespoon to a gallon of water. Quick-growing varieties like

lettuce require only one feeding. Others need it twice. As to quantities of fertilizer, use from ten to fifteen pounds of cow manure to a thousand square feet; slaked lime, one bag to a hundred square feet, keeping it off potatoes; and chemical fertilizer at the rate of five hundred pounds to the acre.

Throughout the growing season, it is essential to control insect pests that either chew the leaves, eat the roots, or suck the sap from the leaf or stem. Those that chew, like the potato bug, cabbage worm, cucumber beetle, tomato worm, or Mexican bean beetle may be controlled by dusting with rotenone or pyrethrum. The sucking insects, such as spider on tomatoes, aphis or plant lice on cabbage, cauliflower and other vegetables, can be controlled by dusting with sulphur powder or nicotine dust. These insecticides can also be applied in liquid form with a sprayer. Japanese beetles will probably prove the worst garden pest, especially on sweet corn, asparagus, grapes and roses. Dusting with lime or rotenone will keep the beetles away.

In the matter of plant diseases, the most practical advice is to keep the plants well nourished, the garden soil well-limed and well-drained, using treated seed where possible and allowing plenty of sunshine to each individual plant. If obliged to use a direct remedy, the material to use is Bordeaux mixture as a spray or a combination of copper sulphate and lime applied with a duster.

These are the highlights of vegetable growing. If more detailed information is needed, it can be obtained by writing to Victory Gardens, Washington, D. C., or to local state agricultural experiment stations.

In addition to growing vegetables for immediate use, we should, as a wartime measure, also plant fruit trees and berry bushes and take care of the existing ones. The young trees that are set out will take more than a season to produce fruit, but we will need that fruit for sometime to come, even after the war is over.

A Tree a Second

(*From page* 170)

three working with the efficiency usually displayed by factory workers at their machines," says Mr. Bruhn.

At another demonstration it required but fifteen minutes to plant three rows of trees which were to serve as a windbreak a quarter of a mile long. This can be compared with the present rate of 1,000 trees a man a day by hand planting.

"And speed is not the only advantage," Mr. Trenk explained. "Under present conditions of one foreman to a

crew of eight hand planters, there is bound to be careless work such as exposed roots or insufficient tamping. This is almost impossible with a mechanical planter."

Due to the war, the reforestation program of the nation is considerably behind schedule, Mr. Trenk believes.

Reforestation is a long term activity. Hence it is more likely to be pushed aside in an acute crisis like the present. But with a labor-saving aid such as this machine supplies, the tree planting program should go forward even in wartime. For that reason Mr. Trenk and Mr. Bruhn hope that a manufacturer for the machine can be found even in wartime. If that is impossible, the machine could be built from spare metal parts found in farming communities. The cost should be about $150.

Who will own the machines? Town boards may buy them for rental, which would pay for the initial cost as well as upkeep. Conservation groups may buy them to facilitate the reforestation of large tracts which are suitable for plantations and which could be bought cheaply. Each soil erosion control district should possess a machine to be used where tree planting is needed to prevent wind erosion. Two individuals in Wisconsin who own large areas in the northern part of the state, and who witnessed demonstrations, are pressing Trenk and Mr. Bruhn to make machines for them.

Wherever the machine goes, it will change the picture. It will find a windswept field, and it will leave parallel rows of shelter for crops. It will find a barren roadside, and it will leave an evergreen snowfence. It will find a fallow field, and it will leave a young plantation. It will do all this with less work and in less time than has heretofore been possible.

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WHO'S WHO
Among the Authors in this Issue

ERLE KAUFFMAN (*Timber Mission*) is editor of AMERICAN FORESTS magazine and directs the educational work of The American Forestry Association from its headquarters in Washington.

WILLIAM B. GREELEY (*Charles L. McNary*), leading forester, and secretary of The West Coast Lumbermen's Association, pays tribute to the late Senator McNary—a public servant whose name is written indelibly into the conservation records of our country.

CURTIS ZAHN (*The San Diego Fires*), a San Diego writer who contributes much material to outdoor publications, was formerly an official of the San Diego County Fish and Game Association.

JOHN L. BLACKFORD (*Wards of the Spruce*)—scribe of the western forests and professional photographer, writes from his home at Libby, Montana, a characteristically fascinating tale of the birds of the high mountain country.

Wellington R. Burt

WELLINGTON R. BURT (*Tree Farmer*) majored in engineering and forestry at the University of Michigan. Widely known as assistant forester of the National Lumber Manufacturers' Association and lumber secretary of the Forest Industries Information Committee, Mr. Burt has traveled extensively in every forest region of the United States. Spare moments are devoted to his hobbies of woodworking and gardening.

R. M. RUPERT (*Olives For America*) writes from Los Angeles. He is a free-lancer with a major vice—according to himself—"wanderitis." He has roamed the United States and Canada and loves—next to writing—books and boats, gardens and animals.

J. J. LEVISON (*Your Garden in Wartime*), a Yale man—landscape forester and arboriculturist, writes on a timely subject. Mr. Levison was forester in charge of the parks in Brooklyn and New York for ten years, but now engages only in private consultation. Well known as a lecturer and writer,—author of *The Home Book of Trees and Shrubs*, Mr. Levison makes his home at Sea Cliff, on Long Island.

LORA Z. JACKSON (*Planting A Tree A Second*) is a free lance writer from Madison, Wisconsin.

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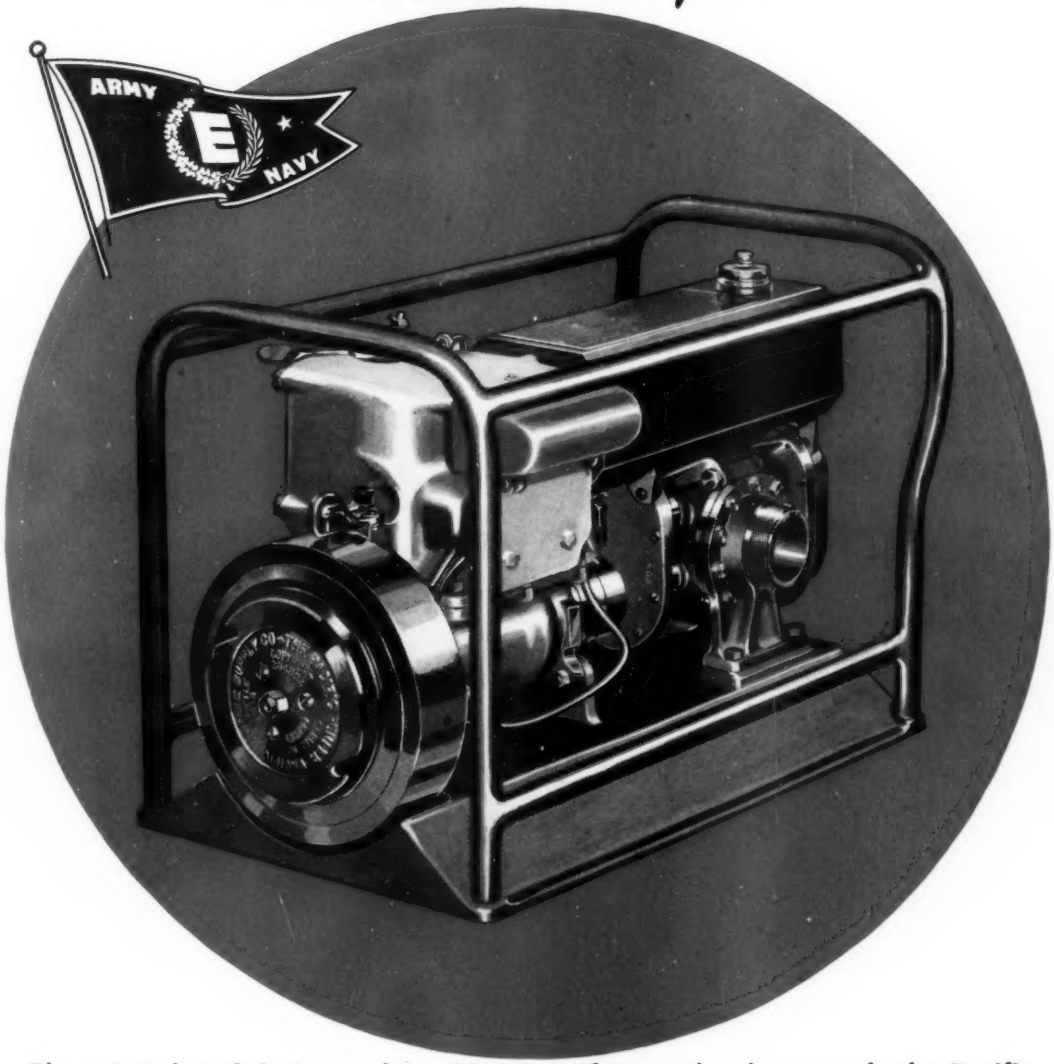

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